

FUJITSU Software

Interstage Application Server

A decorative horizontal band with a red-to-dark-red gradient. It features abstract, glowing white and red lines that swirl and intersect, creating a sense of motion and energy.

Java EE Operator's Guide

Windows/Solaris/Linux

B1WS-1087-03ENZ0(00)
April 2014

Preface

Purpose of this Document

This document introduces the environment builds and application operations for the development of Interstage Java EE applications.

This manual is intended for the following readers:

- People who operate applications using Java EE components

Intended Readers

It is assumed that readers of this document have some knowledge of the following:

- Basic knowledge of the OS used
- Basic knowledge about Java
- Basic knowledge about Web Service
- Basic knowledge about XML
- Basic knowledge about the Internet
- Basic knowledge about the relational database
- Basic knowledge about the transaction model (client/server model)

Structure of This Document

This manual is organized as shown below:

[Chapter 1 Release Information](#)

This chapter explains software requirements, limitations, and notes for the Java EE runtime environment.

[Chapter 2 Functionality Provided in the Java EE Application](#)

This chapter explains the functionality provided in the Java EE application.

[Chapter 3 Java EE Application Development](#)

This chapter explains the development of the Java EE application.

[Chapter 4 Java EE Application Operation](#)

This chapter explains the Java EE application operation method.

[Chapter 5 Java EE Function Security](#)

This chapter explains Java EE application security.

[Chapter 6 Java EE Function Tuning](#)

This chapter explains how to tune Java EE applications.

[Chapter 7 List of Definition Items](#)

This chapter explains the definition items for Java EE application operations.

[Chapter 8 Running High Reliability Systems](#)

This chapter explains how to run high-reliability systems.

[Chapter 9 Maintenance \(Resource Backup/migration of Resources to Another Server\)](#)

This chapter explains how to maintain the Java EE application operating environment.

[Chapter 10 Java EE Operation Commands](#)

This chapter explains the backup and restore commands used in maintenance of the Java EE application operating environment.

Chapter 11 Interstage Operation Management Service Commands

This chapter describes the Interstage Operation Management service commands.

Chapter 12 Backup Commands

This chapter explains the backup and restore commands used to maintain the Java EE application operating environment.

Chapter 13 Java EE Messages

This chapter explains the messages output when the Java EE functionality is used.

Chapter 14 Troubleshooting

This chapter explains how to solve problems in Java EE application operations.

Chapter 15 Samples

This chapter explains the procedures and notes on the use of the Java EE samples.

Appendix A Java DB

This appendix explains the Java DB.

Appendix B File Configuration

This appendix explains the file configurations.

Appendix C Tutorial

This appendix explains the flow for the developed deployment resources using the Interstage Java EE feature.

Conventions

Representation of Platform-specific Information

In the manuals of this product, there are parts containing content that relates to all products that run on the supported platform. In this case, an icon indicating the product platform has been added to these parts if the content varies according to the product. For this reason, refer only to the information that applies to your situation.

	Indicates that this product (32-bit) is running on Windows.
	Indicates that this product (64-bit) is running on Windows.
	Indicates that this product (32/64-bit) is running on Windows.
	Indicates that this product (32-bit) is running on Solaris.
	Indicates that this product (64-bit) is running on Solaris.
	Indicates that this product (32/64-bit) is running on Solaris.
	Indicates that this product (32-bit) is running on Linux.
	Indicates that this product (64-bit) is running on Linux.
	Indicates that this product (32/64-bit) is running on Linux.

Terminology in this document

In this document, both machine property settings (Windows(R)) and Interstage startup environment variables (Solaris/Linux) may also be referred to as "system environment variables".

Product Notation

The notation used in this document (shown below) corresponds to the product that supports the respective software.

Notation	Explanation
RHEL5(x86)	Interstage Application Server for Red Hat Enterprise Linux 5 (for x86)

Notation	Explanation
RHEL5(Intel64)	Interstage Application Server for Red Hat Enterprise Linux 5 (for Intel64)
RHEL6(x86)	Interstage Application Server for Red Hat Enterprise Linux 6 (for x86)
RHEL6(Intel64)	Interstage Application Server for Red Hat Enterprise Linux 6 (for Intel64)

Export Controls

Exportation/release of this document may require necessary procedures in accordance with the regulations of the Foreign Exchange and Foreign Trade Control Law of Japan and/or US export control laws.

Trademarks

Trademarks of other companies are used in this documentation only to identify particular products or systems.

Product Trademarks/Registered Trademarks
Microsoft, Active Directory, ActiveX, Excel, Internet Explorer, MS-DOS, MSDN, Visual Basic, Visual C++, Visual Studio, Windows, Windows NT, Windows Server, Win32 are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
Oracle and Java are registered trademarks of Oracle and/or its affiliates.

Other company and product names in this documentation are trademarks or registered trademarks of their respective owners.

Copyrights

Copyright 2010-2014 FUJITSU LIMITED

April 2014 Third Edition
November 2012 First Edition

Contents

Chapter 1 Release Information.....	1
1.1 Software Requirements.....	1
1.1.1 JRE/JDK Version.....	1
1.1.2 Application Development Environment.....	1
1.1.3 Database.....	1
1.1.4 Web Server.....	3
1.1.5 High Availability.....	3
1.1.6 Management Console.....	3
1.1.7 Operation/Management.....	4
1.2 Restrictions.....	4
1.2.1 Restrictions on Application Operations.....	4
1.2.2 Applications in the IPv6 Environment.....	6
1.2.3 Security Functions.....	6
1.2.4 Restrictions on Commands.....	6
1.2.5 Restrictions on Interstage Java EE Admin Console.....	7
1.3 Notes on Interstage Operation.....	8
1.3.1 Differences with GlassFish.....	8
1.3.1.1 Differences in Deployment.....	9
1.3.2 Notes About Using Windows Server® 2003.....	9
1.3.3 Notes on Interstage Java EE Admin Console Operation.....	9
1.3.4 Notes About Deployment.....	12
1.3.5 Notes About Web Applications.....	15
1.3.6 Notes About EJB.....	19
1.3.7 Notes About JPA.....	19
1.3.8 Notes on the Connector Function.....	20
1.3.9 Notes About JMS.....	20
1.3.10 Notes Related to Date/time.....	22
1.3.11 Notes on the Java EE Password.....	23
1.3.12 Notes on Application Security.....	23
1.3.13 Notes on the Web Service/Web Service Client.....	23
1.3.14 Notes on Repository Synchronization.....	24
1.3.15 Notes on Resource Access Privileges when the Service Operator User has been Changed.....	24
1.3.16 Notes About Using Cluster Service Linkage.....	25
1.3.17 Notes on Log File Rotation.....	25
1.3.18 Notes on Using 'root' in Solaris.....	25
Chapter 2 Functionality Provided in the Java EE Application.....	26
2.1 Overall Configurations.....	26
2.1.1 Interstage Java EE Operating Environment.....	26
2.1.2 JRE/JDK/JRE Used by Java EE.....	27
2.1.3 Java EE Common Directory.....	27
2.1.4 Repository Synchronization.....	28
2.1.5 Initializing the Java EE Environment.....	29
2.1.6 User Name and Password Used in the Java EE Environment.....	31
2.1.7 Customizing a Service Operator User.....	31
2.2 Interstage Java EE DAS Service.....	31
2.2.1 Interstage Java EE DAS Service File Configuration.....	32
2.2.2 Interstage Java EE DAS Service Log Files.....	33
2.2.3 Interstage Java EE DAS Service Instance Names and Definition Information.....	33
2.2.4 Differences with the IJServer Cluster.....	33
2.3 Interstage Java EE Node Agent Service.....	34
2.3.1 Interstage Java EE Node Agent Service File Configuration.....	34
2.3.2 Interstage Java EE Node Agent Service Log Files.....	35
2.4 IJServer Cluster.....	35
2.4.1 IJServer Cluster Operating Environment.....	35

2.4.2 IJServer Cluster File Configuration.....	35
2.4.3 IJServer Cluster Multiple Process Configurations.....	38
2.4.4 The Life-and-death Monitoring of the Java VM Process.....	39
2.4.5 Degeneration.....	40
2.4.6 Controlling Insufficient Space in the Java Heap/Permanent Generation Space.....	41
2.4.7 Monitoring the Maximum Processing Time for Application and Response Monitoring.....	41
2.4.8 Alert Monitoring.....	43
2.5 Functionality Provided in Web Container.....	43
2.5.1 Servlet 2.5.....	43
2.5.2 JSP 2.1.....	44
2.5.3 Error Page.....	45
2.5.4 JSP Precompile.....	46
2.5.5 JSP Operations Using Java Standard Edition 6.....	47
2.6 About Session Recovery.....	48
2.6.1 Session Recovery Functionality.....	48
2.6.1.1 Session Backup.....	49
2.6.1.2 Session Recovery.....	52
2.6.1.3 Enabling/Disabling Session Recovery in the URI.....	53
2.6.1.4 Session Recovery Monitoring.....	55
2.6.1.5 Web Server Connector Fault Monitoring.....	55
2.6.1.6 Maximum Number of Sessions that are Retained in the Session Registry Server.....	55
2.6.1.7 Session Serialization.....	56
2.6.1.8 Clearing All Sessions.....	57
2.6.1.9 Session Recovery Log.....	57
2.6.1.10 Destroying Expired (Timed Out) Session Registry Server Sessions.....	57
2.6.1.11 Controlling Access to the Session Registry Server.....	57
2.6.1.12 Controlling Access to the Session Registry Client.....	58
2.6.2 Session Recovery Scope.....	58
2.7 HTTP Service.....	60
2.7.1 HTTP Listener.....	60
2.7.2 HTTP Access Log.....	60
2.7.3 HTTP Trace Log.....	60
2.8 Functionality Provided in EJB.....	60
2.8.1 Session Bean Runtime Environment.....	61
2.8.2 Message-driven Bean Runtime Environment.....	62
2.8.3 Load Balancing Using the EJB Dispatcher Feature.....	64
2.8.3.1 Adding/deleting Dispatch Target Enterprise JavaBeans.....	65
2.8.3.2 Dispatch Target Enterprise JavaBeans.....	66
2.8.3.3 Dispatch Operations using Commands, and Status Display.....	67
2.8.3.4 EJB Dispatcher Logs.....	67
2.9 Time Monitoring Functionality that can be Used in the EJB Container.....	70
2.9.1 Non-communication Time Monitoring Functionality for the Stateful Session Bean Instance.....	72
2.9.2 Transaction Completion Time Monitoring Functionality for the EJB Container.....	73
2.9.3 EJB Timer Service.....	73
2.10 EJB/JTA Method Logs.....	77
2.10.1 Definition Detail.....	82
2.10.2 Command Detail.....	82
2.11 Functionality Provided in JPA.....	83
2.11.1 JPA Runtime Environment.....	84
2.11.2 Persistence Provider Settings.....	84
2.11.3 Supported Database and Settings.....	85
2.11.4 Supporting Java Data Types and DBMS SQL Data Types Defined in the Entity.....	87
2.11.5 Functionality for the Automatic Generation of Primary Key Values.....	88
2.11.6 Functionality for the Automatic Generation of Database Tables.....	90
2.11.7 Lock Functionality for the Line.....	94
2.11.8 SQL Log Functionality.....	95
2.12 ORB (Object Request Broker)/RMI-IIOP.....	96

2.13 Application Client Container.....	97
2.14 JNDI.....	98
2.14.1 Naming Service.....	100
2.14.2 Environment Naming Context.....	104
2.14.3 Differences in Specifications between Naming Service and Environment Naming Context.....	112
2.14.4 Other Naming Services Linkage Feature.....	113
2.14.5 Object Reference Cache Feature.....	114
2.15 Transaction Control.....	115
2.15.1 Local Transactions and Global Transactions.....	116
2.15.2 How to Control Transactions.....	119
2.15.3 2-phase Commit Protocol.....	119
2.15.4 Managing Transaction Resources.....	120
2.15.5 Transaction Log.....	121
2.15.6 Transaction Monitoring and Freeze Functionality.....	121
2.16 Connection Pool.....	122
2.17 Database Connection/JDBC.....	124
2.18 Time Monitoring Functionality that can be Used at the Time of Database Connection.....	125
2.19 JMS Functions that are Provided.....	126
2.19.1 Message Broker.....	127
2.19.2 Message Broker Functions.....	128
2.19.3 Physical Storage Destination Management.....	128
2.19.4 Connection Service.....	132
2.19.5 Port Mapper.....	133
2.19.6 Routing Service.....	133
2.19.7 Persistence Service.....	134
2.19.8 High Reliability Function.....	134
2.19.9 Predelivery.....	136
2.20 Functionality Provided in the Connector.....	140
2.20.1 Definition of the Connector Connection Pool and Connector Resources.....	140
2.20.2 Outbound/resource Adapter Transaction Control.....	141
2.20.3 Connections with Message-driven Bean.....	141
2.20.4 Definition of Managed Object Resources.....	142
2.20.5 JavaBean Configurations.....	142
2.20.6 Execution of Work when the Thread Pool is Used.....	143
2.21 Time Monitoring Functionality that can be Used in the Connector.....	143
2.22 Group Management Service.....	143
2.23 Class Loader.....	144
2.23.1 Class Loader Configuration.....	145
2.23.2 Classification of Class Loaders.....	146
2.23.3 Changing the Transfer Model of Web Class Loader.....	148
2.23.4 Setting Classes Used by IJServer Cluster.....	149
2.23.5 Setting the XML Parser.....	150
2.23.6 Note About the Use of the Class Loader.....	150
2.24 Lifecycle Module.....	151
2.24.1 Design Procedure for the Lifecycle Module.....	152
2.24.2 Operation Procedure for the Lifecycle Module.....	153
2.25 J2EE/Java EE Linkage Function.....	153
2.25.1 Calling an Application in a Java EE Runtime Environment from a J2EE Runtime Environment.....	153
2.25.2 Calling an Application in a J2EE Runtime Environment from a Java EE Runtime Environment.....	154
2.26 CORBA Service Application Call.....	155
2.27 Time Monitoring Features that can be Used in IIOP Communication.....	157
2.27.1 IIOP Connection Wait Time Monitoring Feature.....	157
2.27.2 IIOP Communication Server Method Recovery Time Monitoring Feature.....	163
2.27.3 IIOP Communication Socket Send/Receive Wait Time Monitoring Feature.....	164
2.27.4 IIOP Communication Client Non-communication Monitoring Feature.....	167
Chapter 3 Java EE Application Development.....	168

3.1 Creating the Application.....	168
3.1.1 Preparatory Tasks for Java EE Applications.....	168
3.1.2 Developing Web Service Applications.....	168
3.1.3 Developing Web Service Client Applications.....	172
3.1.4 Data Types that can be Used in Web Service Communication.....	175
3.1.5 WSDL Descriptions that are Used in the Web Service/Web Service Client.....	184
3.1.6 Creating the Client Application.....	185
3.1.7 How to Use JNDI.....	186
3.1.8 Creating Applications that Connect to the Database.....	186
3.1.9 Creating the Lifecycle Module.....	189
3.1.10 How to Create J2EE/Java EE Linked Applications.....	192
3.1.11 Environment Settings for Access to Shared Network Resources.....	193
3.1.12 How to Call CORBA Service applications from Java EE Applications.....	194
3.1.13 Creating Web Applications when Using Session Recovery.....	197
3.1.14 Notes About Integration with IPCOM.....	200
3.2 Deployment Descriptor.....	201
3.2.1 Notes on the Deployment Descriptor (web.xml).....	202
3.2.2 Deployment Descriptor Regulated by the Java EE Rules.....	205
3.2.2.1 Java EE Application Deployment Descriptor (application.xml).....	205
3.2.2.2 Web Application Deployment Descriptor (web.xml).....	207
3.2.2.3 Default Mime Types.....	226
3.2.3 Interstage Deployment Descriptor.....	230
3.2.3.1 Interstage Application Deployment Descriptor (sun-application.xml).....	230
3.2.3.2 Interstage Web Application Deployment Descriptor (sun-web.xml).....	231
3.2.3.3 Interstage EJB Application Deployment Descriptor (sun-ejb-jar.xml).....	233
3.2.3.4 Interstage CMP Mappings Deployment Descriptor (sun-cmp-mappings.xml).....	237
3.2.3.5 Interstage Application Client Deployment Descriptor (sun-application-client.xml).....	239
3.2.3.6 Interstage ACC Deployment Descriptor (sun-acc.xml).....	240
3.2.3.7 Tag and Description of the Interstage Deployment Descriptor.....	241
3.3 Application Debugging.....	257
3.3.1 Debugging Using the Application Debug Information.....	258
3.3.2 Debugging Using the Debugger.....	258
3.3.3 Debugging Using the Thread Stamp.....	258
3.3.4 Debugging Using the Java Method Trace.....	258
Chapter 4 Java EE Application Operation.....	260
4.1 Operations Using Interstage Java EE Admin Console.....	260
4.1.1 How to Use the Interstage Java EE Admin Console.....	262
4.2 Operations Using Commands.....	263
4.3 Interstage Java EE DAS Service Operations.....	263
4.3.1 Operations.....	263
4.3.2 Changing the Settings.....	264
4.3.3 Environment Variable Settings.....	264
4.3.4 Deploying the Application.....	265
4.3.5 Creating the Resources.....	265
4.3.6 Application Operations.....	265
4.3.6.1 Executing Web Applications.....	265
4.3.7 Automatic Startup/Stop of a Service.....	265
4.4 Interstage Java EE Node Agent Service Operations.....	266
4.4.1 Operations.....	266
4.4.2 Changing the Settings.....	267
4.4.3 Environment Variable Settings.....	267
4.4.4 Automatic Start/Stop of a Service.....	268
4.5 IJServer Cluster Operations.....	268
4.5.1 Creating/deleting the IJServer Cluster.....	268
4.5.2 Managing the Settings.....	269
4.5.3 Adding/deleting the Server Instance.....	270

4.5.4 Starting/Stopping/Displaying the Operational Status of the IJServer Cluster.....	272
4.5.5 Starting/Stopping/Displaying the Operational Status of the Server Instance.....	272
4.5.6 Recovering a "Partially Running" IJServer Cluster.....	273
4.5.7 Automatic Start/stop of an IJServer Cluster.....	274
4.5.8 Executing Operations at the Same Time.....	274
4.6 Deploying Applications.....	276
4.6.1 Overview of Java EE Deployment.....	277
4.6.2 Procedure for Deploying Applications.....	278
4.6.3 Verifying the Application.....	278
4.6.4 Deploying Applications that have been Expanded into a Directory.....	279
4.6.5 Procedure for Undeploying Applications.....	280
4.6.6 Displaying a List of Deployed Applications.....	280
4.6.7 Setting the Environment for Applications that have already been Deployed.....	281
4.6.8 Reference to Deployment Descriptors of Applications that have already been Deployed.....	281
4.6.9 Expanding Applications.....	282
4.6.10 Canceling Application Expansion.....	282
4.6.11 Displaying a List of Expanded Applications.....	282
4.6.12 Changing the Activity State of Applications.....	283
4.6.13 Redeploying Applications.....	284
4.6.14 Auto-reloading Applications.....	285
4.7 Preparatory Tasks for Web Container Operations.....	287
4.7.1 Operations for Accessing Web Applications.....	287
4.7.1.1 Operation Configurations Determined by Differences in Communication Paths.....	287
4.7.1.2 Operation Configurations Determined by Differences in the Number of Concurrent Processes.....	288
4.7.1.2.1 Operations Involving a Single Process.....	288
4.7.1.2.2 Operations based on Concurrent Processes on a Single Machine.....	289
4.7.1.2.3 Operations involving Multiple Machines.....	290
4.7.1.3 Operation Configurations that Use an SSL Accelerator.....	291
4.7.1.4 Changing the Operation Configuration for Accessing Web Applications.....	292
4.8 Preparations for Operations Performed via a Web Server.....	294
4.8.1 Setting the Web Server Environment.....	294
4.8.1.1 Setting the Interstage HTTP Server Environment.....	294
4.8.1.2 Setting the Microsoft(R) Internet Information Services 6.0 Environment.....	294
4.8.1.3 Setting the Microsoft(R) Internet Information Services 7.0/7.5/8.0 Environment.....	297
4.8.2 Connecting the Web Server and the IJServer Cluster.....	301
4.8.2.1 Running the Web Server and the IJServer Cluster on the Same Machine.....	302
4.8.2.2 Running the Web Server and the IJServer Cluster on Different Machines.....	303
4.8.2.3 Web Server Connector Logs.....	304
4.8.2.4 Combining the IJServer (J2EE) and the IJServer Cluster.....	304
4.8.2.5 Changing the [Run the Web Server and the WorkUnit on the Same Machine] System Environment Setting.....	305
4.9 Request Distribution Control by Web Server Connector.....	306
4.9.1 Distributing Procedure and Viewing the Status Using the Commands.....	306
4.9.2 Monitoring Web Server Connector Faults.....	308
4.10 How to Operate Session Recovery.....	314
4.10.1 Overview of the Session Recovery Settings.....	314
4.10.2 Session Registry Server Settings.....	315
4.10.2.1 Creating the IJServer Cluster for the Session Registry Server (Using the Interstage Java EE Admin Console).....	317
4.10.2.2 Creating the IJServer Cluster for the Session Registry Server (Using the asadmin Command).....	319
4.10.2.3 Deploying Session Registry Server (Using the Interstage Java EE Admin Console).....	320
4.10.2.4 Deploying Session Registry Server (Using the asadmin Command).....	321
4.10.2.5 Session Registry Server Environment Settings.....	321
4.10.3 Session Registry Client Settings.....	323
4.10.4 Session Recovery Tuning.....	330
4.10.4.1 Settings for each Timeout Value.....	331
4.10.4.2 Settings for Session Registry Server Concurrency.....	332
4.10.4.3 Examples of the IP Address and Port Number Settings.....	333
4.10.5 Operations.....	336

4.10.5.1	Session Registry Server Operations and References.....	336
4.10.5.2	Changing the Session Registry Server Start User	337
4.10.5.3	Isolating a Machine.....	337
4.10.5.4	Multiple Session Registry Server Operations.....	338
4.10.5.5	Restarting the Session Registry Server.....	338
4.10.5.6	Backing up and Restoring the Session Registry Server Resources.....	338
4.11	Java EE Application Client Operations.....	339
4.11.1	Setting the Java EE Application Client Environment.....	339
4.11.2	Java EE Application Client Operation.....	340
4.12	Procedure when the Web service is Used.....	342
4.12.1	Deploying Web Service Applications.....	342
4.12.2	Customizing the Web Service Operating Environment.....	343
4.13	Procedure when the Web Service Client is Used.....	344
4.13.1	Web Service Client Operating Environment.....	344
4.13.2	Executing the Web Service Client.....	344
4.14	Setting the JNDI Environment.....	345
4.14.1	Setting Environment Variables.....	345
4.14.2	Settings When the Initial Context is Generated.....	345
4.14.3	Settings for Connections from the Client to the Server.....	346
4.14.4	Cache Settings for Object References.....	347
4.15	Preparatory Tasks for Resource Definitions.....	348
4.15.1	Procedure when JMS is Used.....	348
4.15.2	Procedure when JavaMail is Used.....	348
4.15.3	Procedure when JDBC is Used.....	348
4.15.4	Procedure when the Connector is Used.....	348
4.15.5	Procedure when other Resources are Used.....	348
4.15.5.1	The Method that is Used to Define Custom Resources.....	349
4.15.5.2	The Method that is Used to Define External Resources.....	350
4.15.6	Procedure for Changing the Resource Status.....	351
4.15.7	Procedure for Selecting the Target that Uses the Resources.....	353
4.16	Setting the Database Environment.....	353
4.16.1	Setting the JDBC Driver Environment.....	354
4.16.2	Java DB JDBC Driver (Type 4).....	357
4.16.3	Oracle Thin JDBC Driver (Type 4).....	359
4.16.4	Oracle OCI JDBC Driver (Type 2).....	361
4.16.5	Symfoware JDBC Driver (Type 2).....	363
4.16.6	Microsoft(R) SQL Server(TM) JDBC Driver (Type 4).....	367
4.16.7	Ping Functionality.....	368
4.17	JMS Operation Methods.....	369
4.17.1	Design Methods.....	369
4.17.2	Operating the Message Broker.....	370
4.17.3	Preparation for Sending/Receiving JMS Messages.....	376
4.17.4	Operating JMS Client Applications.....	377
4.17.5	Message Broker Log.....	379
4.17.6	Access Logs for the Message Broker.....	380
4.18	Connector Operation Method.....	386
4.18.1	Deploying the Connector Module and Creation of Resource Definitions.....	386
4.18.2	Undeploying the Connector Module and Deleting Resource Definitions.....	388
4.19	Relationship between JMS Resources and Connector Resources.....	389
4.20	J2EE/Java EE Linkage Configuration.....	391
4.20.1	Calling an Application in a Java EE Runtime Environment from a J2EE Runtime Environment.....	391
4.20.2	Calling an Application in a J2EE Runtime Environment from a Java EE Runtime Environment.....	392
4.21	J2EE/Java EE Linkage Operation.....	393
4.21.1	Calling an Application in a Java EE Runtime Environment from a J2EE Runtime Environment.....	393
4.21.2	Calling an Application in a J2EE Runtime Environment from a Java EE Runtime Environment.....	393
4.22	Java EE Application Logs.....	393
4.22.1	Server Log.....	395

4.22.2 Java VM Log.....	396
4.22.3 HTTP Access Log.....	397
4.22.4 IIOP Access Log.....	400
4.22.5 HTTP Trace Logs.....	410
4.22.6 Rotation of the Log File.....	412
4.23 Control for Dispatching Requests via IIOP Communications.....	415
4.23.1 System Design.....	415
4.23.1.1 Notes on Tuning the EJB Dispatcher Feature.....	417
4.23.1.2 Types of Enterprise JavaBeans that Can be Used with IPCOM Linkage.....	417
4.23.2 Load Balancing and Failover Algorithms.....	418
4.23.2.1 If a Load Balancing Function is not Used.....	418
4.23.2.2 Load Balancing Based on the EJB Dispatcher Feature.....	418
4.23.2.3 Load Balancing Based on the Group Management Service.....	421
4.23.3 Settings for the Server.....	423
4.23.3.1 If a Load Balancing Function is not Used.....	423
4.23.3.2 Load Balancing Based on the EJB Dispatcher Feature.....	424
4.23.3.3 Load Balancing Based on the Group Management Service.....	424
4.23.4 Settings for the Client (the Caller).....	425
4.23.4.1 If a Load Balancing Function is not Used.....	425
4.23.4.2 Load Balancing Based on the EJB Dispatcher Feature.....	426
4.23.4.3 Load Balancing Based on the Group Management Service.....	427
4.23.5 Failover Settings for Object References.....	428
4.24 IIOP Communication Load Balancing Using IPCOM.....	428
4.24.1 Using No Load Balancer or Using Load Balancing based on the EJB Dispatcher Feature.....	428
4.24.2 Using Load Balancing Based on the Group Management Service.....	434
4.25 Operations where Enterprise JavaBeans are Accessed.....	438
4.25.1 Accessing Session Beans.....	438
4.25.2 Accessing Message-driven Beans.....	441
4.26 Symfoware Audit Trails.....	441
4.26.1 Design Method.....	441
4.26.2 Operating Method.....	441
Chapter 5 Java EE Function Security.....	443
5.1 Java EE Operating Environment Security Function.....	443
5.1.1 Java EE Operating Environment Roles.....	443
5.1.2 IJServer Cluster Process Execution Privileges.....	444
5.1.3 Login Authentication.....	445
5.1.4 Privileges and Authenticated Users.....	445
5.1.5 Registering the Administrator User.....	447
5.1.5.1 Realm for Login Authentication.....	448
5.1.5.2 Changing the Realm Type.....	448
5.1.5.3 OS Realm Settings.....	448
5.1.5.4 File Realm Settings.....	450
5.1.5.5 ldap Realm Settings.....	452
5.1.5.6 Notes on Updating Admin-realm and Administrator User Information.....	454
5.1.6 Specifying the Administrator User.....	455
5.1.6.1 Login Authentication when the Interstage Java EE DAS Service /Interstage Java EE Node Agent Service Starts Up.....	455
5.1.6.2 Login Authentication for the asadmin Command.....	456
5.2 Java EE Application Security Functionality.....	457
5.2.1 Authentication.....	457
5.2.2 Authorization.....	458
5.2.3 SSL.....	459
5.2.3.1 Communication that can Use SSL.....	459
5.2.3.2 Keystore Settings.....	461
5.2.4 User/group/role.....	464
5.2.5 Realm.....	464
5.2.6 Requests for the Guarantee of Communication Data between the Client and the Web Server.....	465

5.2.7 Spreading Authentication Information to the EJB Container.....	465
5.2.8 Security Manager.....	467
5.3 Method of Operation Using the Security Functionality.....	468
5.3.1 Role and Role Base Access Restriction Settings.....	468
5.3.2 Mapping a Role to the User/group.....	468
5.3.3 Creating the Realm.....	469
5.3.4 Default Realm Settings.....	469
5.3.5 ldap Realm Settings.....	470
5.3.6 File Realm Settings.....	471
5.3.7 When the Application Developer/Person Responsible for Deployment/System Administrator are the Same Person.....	472
5.3.8 Security Manager Operations.....	473
5.3.8.1 Enabling and Disabling Security Manager.....	473
5.3.8.2 Editing the Policy File.....	473
5.3.8.3 Application Access Privileges Settings.....	474
5.4 Web Service Security Settings.....	475
5.5 Web Service Client Security Settings.....	475
5.6 Authentication Information at the Time of Resource Access.....	476
5.7 JMS Security Function.....	479
5.7.1 Users and Groups.....	479
5.7.2 Access Control Properties File.....	479
5.7.3 Authentication Method for Using JMS from an Application.....	483
5.8 Symfoware Audit Trails.....	484
5.8.1 Executing Symfoware Audit Trails.....	485
5.8.2 Output Information Content.....	485
5.8.2.1 Correspondence with the Symfoware Audit Log.....	485
5.8.2.2 Information Recorded for the Various Operations.....	486
Chapter 6 Java EE Function Tuning.....	487
6.1 Interstage Java EE DAS Service Tuning.....	487
6.2 Interstage Java EE Node Agent Service Tuning.....	490
6.3 IJServer Cluster Tuning.....	491
6.3.1 Multiple Process Operations.....	491
6.3.2 Java VM Heap and Permanent Area Size.....	491
6.3.3 Number of Garbage Collections.....	492
6.3.4 Application Timeout.....	492
6.3.5 Setting the Group Management Service.....	492
6.4 Interstage Java EE Admin Console Tuning.....	493
6.4.1 Session Timeout.....	493
6.4.2 Tuning the Maximum Size of the Uploaded File.....	494
6.4.3 Port Number.....	494
6.4.4 Using SSL Communication.....	495
6.5 Tuning for Deployment.....	495
6.6 Web Container Tuning.....	496
6.7 Session Recovery Tuning.....	500
6.8 EJB Container Tuning.....	502
6.8.1 Thread Pooling.....	502
6.8.2 Enterprise Bean Instance Caching.....	505
6.8.3 Enterprise Bean Instance Pooling.....	506
6.8.4 Functionality that Prevents Data Copying Using Remote Access in the Same Java VM.....	508
6.9 JPA Tuning.....	508
6.9.1 Persistence Context Cache.....	508
6.9.2 Shared Persistence Unit Cache.....	510
6.10 Web Service Tuning.....	513
6.11 Tuning the Database Linkage Environment.....	513
6.11.1 Number of Connections in the Pool.....	513
6.11.2 Connection Verification.....	515
6.11.3 Transaction Management.....	517

6.11.4 Detail Attributes.....	517
6.12 Connector Tuning.....	518
6.12.1 Number of Connections in the Pool.....	518
6.12.2 Connection Verification.....	520
6.12.3 Transaction Management.....	521
6.12.4 Shutdown Timeout.....	522
6.13 Port Tuning.....	522
6.14 Transaction Service Tuning.....	524
6.15 ORB Tuning.....	525
6.15.1 ORB.....	525
6.15.2 Notes on Communication Data Size.....	528
6.16 Alert Monitoring Function Tuning.....	530
6.17 Action when a Warning is Generated by the Alert Monitoring Function.....	530
6.17.1 Alert Monitoring Warning Messages (Java Heap).....	531
6.17.2 Alert Monitoring Warning Messages (Garbage Collection).....	532
6.18 Interstage Java EE DAS Service Heap Size and Address Space.....	534
6.19 Correlative Time Monitoring Function Relationships.....	537
6.20 Monitoring Information.....	541
6.20.1 Tip.....	542
6.21 Performance Monitoring and Logging.....	542
6.21.1 Procedures for Performance Monitoring.....	543
6.21.2 The Log File.....	545
6.21.3 Analyzing the Log File.....	547
6.22 Profiler Settings.....	558
6.22.1 How to Operate the Profiler Setup.....	558
6.23 Required Resources.....	559
6.23.1 Disk Capacity.....	559
6.23.2 Memory Usage.....	564
6.23.3 System Resources.....	565
6.23.3.1 Setting the Web Server Connector System Resources.....	565
Chapter 7 List of Definition Items.....	566
7.1 Domain Definition Items.....	566
7.2 Interstage Java EE Node Agent Service Definition Items.....	567
7.2.1 Logger Definition Items.....	570
7.3 Server Instance Definition Items.....	571
7.4 Cluster Definition Items.....	572
7.4.1 IIOP Load Balancer Definition Items.....	573
7.4.2 JNDI Service Definition Items.....	574
7.5 Application-related Definition Items.....	575
7.5.1 Java EE Application Definition Items.....	575
7.5.2 Web Application Definition Items.....	576
7.5.3 EJB Module Definition Items.....	578
7.5.4 Application Client Module Definition Items.....	579
7.5.5 Connector Module Definition Items.....	580
7.5.6 Lifecycle Module Definition Items.....	581
7.6 Resource-related Definition Items.....	582
7.6.1 JDBC Connection Pool Definition Items.....	582
7.6.2 JDBC Resource Definition Items.....	587
7.6.3 JMS Connection Factory Definition Items.....	588
7.6.4 JMS Send Destination Resource Definition Items.....	590
7.6.5 JavaMail Session Definition Items.....	591
7.6.6 Connector Connection Pool Definition Items.....	593
7.6.7 Connector Resource Definition Items.....	596
7.6.8 Managed Object Resource Definition Items.....	597
7.6.9 Resource Adapter Definition Information Definition Items.....	598
7.6.10 Custom Resource Definition Items.....	598

7.6.11 External Resource Definition Items.....	599
7.7 Message Broker Option Properties.....	600
7.7.1 Connection Service Properties.....	600
7.7.2 Routing Service Properties.....	603
7.7.3 Physical Storage Destination Automatic Generation Properties.....	604
7.7.4 Persistence Service Properties.....	608
7.7.5 Security Properties.....	609
7.7.6 Log Function Properties.....	609
7.7.7 Physical Storage Destination Generation or Update Properties.....	610
7.8 Operating Environment-related Definition Items.....	613
7.8.1 Properties Used when Creating and Updating Definitions.....	613
7.8.2 Setting Definition Items.....	616
7.8.3 HTTP Service Definition Items.....	617
7.8.4 IIOP Service Definition Items.....	625
7.8.5 Managed Service Definition Items.....	627
7.8.6 Connector Service Definition Items.....	629
7.8.7 Web Container Definition Items.....	630
7.8.8 EJB Container Definition Items.....	631
7.8.9 Message-driven Bean Default Pool Definition Items.....	635
7.8.10 JMS Service Definition Items.....	636
7.8.11 Logger Definition Items.....	637
7.8.12 Security Definition Items.....	638
7.8.13 Transaction Service Definition Items.....	640
7.8.14 Monitoring Service Definition Items.....	643
7.8.15 Java VM Definition Items.....	645
7.8.16 Thread Pool Definition Items.....	648
7.8.17 Group Management Service Definition Items.....	649
7.8.18 System Property Definition Items.....	650
7.8.19 Process Control Definition Items.....	651
7.8.20 Availability Service Definition Items.....	653
7.9 System Property Definition Items.....	653
Chapter 8 Running High Reliability Systems.....	655
8.1 Providing a High Reliability Environment.....	655
8.2 Operation Modes.....	656
8.3 Building a Cluster Service Linkage Environment.....	657
8.3.1 Installing Java EE.....	657
8.3.2 Disabling the Java EE Automatic Startup.....	657
8.3.3 Cluster System Pre-configuration.....	657
8.3.4 Java EE Configuration.....	658
8.3.5 Cluster Service Configuration.....	661
8.3.6 Checking Cluster System Operation.....	665
8.4 Removing the Cluster Service Linkage.....	666
8.4.1 Deleting the Cluster Service (userApplication).....	666
8.4.2 Clearing the Cluster System Configuration.....	666
8.4.3 Initializing the Interstage Java EE Environment.....	666
8.5 Configuring the Application.....	666
8.5.1 Server Application Environments.....	666
8.5.2 Client Application Environments.....	667
8.6 Operations.....	667
8.6.1 Start.....	668
8.6.2 Switch/Failover (Normal).....	668
8.6.3 Swap.....	668
8.6.4 Integrate.....	668
8.6.5 Stop.....	668
8.6.6 Failover (Abnormal).....	669
8.6.7 Recovery After Failover.....	669

8.7 Troubleshooting.....	669
8.7.1 Troubleshooting Procedure.....	669
8.7.2 Standby Node Integration After a Switch.....	669
8.8 About the Cluster System Test Method.....	670
Chapter 9 Maintenance (Resource Backup/migration of Resources to Another Server).....	671
9.1 Backing up and Restoring Resources.....	671
9.1.1 IJServer Cluster Backup/restore Target Resources.....	671
9.1.2 Backing up IJServer Cluster Resources.....	671
9.1.3 Restoring IJServer Cluster Resources.....	672
9.2 Importing Resources.....	675
9.2.1 Importing IJServer Cluster Resources.....	675
Chapter 10 Java EE Operation Commands.....	679
10.1 asadmin.....	681
10.1.1 List of Subcommands of the asadmin Command.....	699
10.1.2 asadmin Command Common Options.....	702
10.1.3 Subcommands - Category: Common.....	704
10.1.3.1 help Subcommand.....	704
10.1.3.2 multimode Subcommands.....	705
10.1.3.3 login Subcommand.....	707
10.1.4 Subcommands - Category: Referencing/Updating Definition Items.....	709
10.1.4.1 get Subcommand.....	712
10.1.4.2 set Subcommand.....	713
10.1.4.3 list Subcommand.....	716
10.1.5 Subcommands - Category: Configuration File Verification.....	717
10.1.5.1 verify-domain-xml Subcommand.....	717
10.1.6 Subcommands - Category: IJServer Cluster Operation.....	718
10.1.6.1 create-cluster Subcommand.....	718
10.1.6.2 delete-cluster Subcommand.....	719
10.1.6.3 start-cluster Subcommand.....	720
10.1.6.4 stop-cluster Subcommand.....	721
10.1.6.5 list-clusters Subcommand.....	722
10.1.6.6 create-instance Subcommand.....	724
10.1.6.7 delete-instance Subcommand.....	725
10.1.6.8 start-instance Subcommand.....	726
10.1.6.9 stop-instance Subcommand.....	727
10.1.6.10 list-instances Subcommand.....	728
10.1.6.11 copy-config Subcommand.....	730
10.1.6.12 delete-config Subcommand.....	731
10.1.6.13 list-configs Subcommand.....	732
10.1.7 Subcommands - Category: Application Status Display.....	733
10.1.7.1 show-component-status Subcommand.....	733
10.1.7.2 list-components Subcommand.....	734
10.1.7.3 list-sub-components Subcommand.....	735
10.1.8 Subcommands - Category: Application Deployment.....	737
10.1.8.1 deploy Subcommand.....	737
10.1.8.2 deploydir Subcommand.....	740
10.1.8.3 get-client-stubs Subcommand.....	743
10.1.8.4 undeploy Subcommand.....	744
10.1.8.5 create-application-ref Subcommand.....	745
10.1.8.6 delete-application-ref Subcommand.....	746
10.1.8.7 list-application-refs Subcommand.....	747
10.1.8.8 enable Subcommand.....	748
10.1.8.9 disable Subcommand.....	749
10.1.9 Subcommands - Category: Web Server Connector.....	750
10.1.9.1 create-web-server-ref Subcommand.....	750
10.1.9.2 delete-web-server-ref Subcommand.....	751

10.1.9.3 list-web-server-refs Subcommand.....	752
10.1.9.4 create-virtual-host-ref Subcommand.....	753
10.1.9.5 delete-virtual-host-ref Subcommand.....	754
10.1.9.6 list-virtual-host-refs Subcommand.....	755
10.1.9.7 update-web-server-connector-config Subcommand.....	755
10.1.9.8 show-web-server-connector-config Subcommand.....	756
10.1.10 Subcommands - Category: Listener.....	757
10.1.10.1 list-iiop-listeners Subcommand.....	757
10.1.11 Subcommands - Category: Thread Pool.....	758
10.1.11.1 create-threadpool Subcommand.....	758
10.1.11.2 delete-threadpool Subcommand.....	759
10.1.11.3 list-threadpools Subcommand.....	760
10.1.12 Subcommands - Category: Web service.....	761
10.1.12.1 configure-webservice-management Subcommand.....	761
10.1.13 Subcommands - Category: Transaction.....	763
10.1.13.1 freeze-transaction-service Subcommand.....	763
10.1.13.2 unfreeze-transaction-service Subcommand.....	763
10.1.13.3 recover-transactions Subcommand.....	764
10.1.13.4 rollback-transaction Subcommand.....	765
10.1.13.5 list-transactions Subcommand.....	766
10.1.14 Subcommands - Category: Resource.....	769
10.1.14.1 create-jdbc-connection-pool Subcommand.....	769
10.1.14.2 delete-jdbc-connection-pool Subcommand.....	772
10.1.14.3 list-jdbc-connection-pools Subcommand.....	773
10.1.14.4 ping-connection-pool Subcommand.....	774
10.1.14.5 create-jdbc-resource Subcommand.....	775
10.1.14.6 delete-jdbc-resource Subcommand.....	776
10.1.14.7 list-jdbc-resources Subcommand.....	777
10.1.14.8 create-jms-resource Subcommand.....	778
10.1.14.9 delete-jms-resource Subcommand.....	779
10.1.14.10 list-jms-resources Subcommand.....	780
10.1.14.11 create-jndi-resource Subcommand.....	782
10.1.14.12 delete-jndi-resource Subcommand.....	783
10.1.14.13 list-jndi-resources Subcommand.....	784
10.1.14.14 list-jndi-entries Subcommand.....	785
10.1.14.15 create-javamail-resource Subcommand.....	786
10.1.14.16 delete-javamail-resource Subcommand.....	787
10.1.14.17 list-javamail-resources Subcommand.....	788
10.1.14.18 create-custom-resource Subcommand.....	789
10.1.14.19 delete-custom-resource Subcommand.....	791
10.1.14.20 list-custom-resources Subcommand.....	791
10.1.14.21 create-connector-connection-pool Subcommand.....	792
10.1.14.22 delete-connector-connection-pool Subcommand.....	794
10.1.14.23 list-connector-connection-pools Subcommand.....	795
10.1.14.24 create-connector-resource Subcommand.....	796
10.1.14.25 delete-connector-resource Subcommand.....	797
10.1.14.26 list-connector-resources Subcommand.....	798
10.1.14.27 create-admin-object Subcommand.....	798
10.1.14.28 delete-admin-object Subcommand.....	800
10.1.14.29 list-admin-objects Subcommand.....	801
10.1.14.30 create-resource-adapter-config Subcommand.....	802
10.1.14.31 delete-resource-adapter-config Subcommand.....	802
10.1.14.32 list-resource-adapter-configs Subcommand.....	803
10.1.14.33 create-resource-ref Subcommand.....	804
10.1.14.34 delete-resource-ref Subcommand.....	805
10.1.14.35 list-resource-refs Subcommand.....	806
10.1.15 Subcommands - Category: Lifecycle Module.....	807

10.1.15.1 create-lifecycle-module Subcommand.....	807
10.1.15.2 delete-lifecycle-module Subcommand.....	808
10.1.15.3 list-lifecycle-modules Subcommand.....	809
10.1.16 Subcommands - Category: System Properties/JVM Options.....	810
10.1.16.1 create-system-properties Subcommand.....	810
10.1.16.2 delete-system-property Subcommand.....	811
10.1.16.3 list-system-properties Subcommand.....	812
10.1.16.4 create-jvm-options Subcommand.....	813
10.1.16.5 delete-jvm-options Subcommand.....	815
10.1.17 Profiler Configuration.....	816
10.1.17.1 create-profiler Subcommand.....	816
10.1.17.2 delete-profiler Subcommand.....	817
10.1.18 Subcommands - Category: Monitoring.....	818
10.1.18.1 generate-jvm-report Subcommand.....	818
10.1.19 Subcommands - Category: Security.....	819
10.1.19.1 change-admin-password Subcommand.....	819
10.1.19.2 change-service-adminuser Subcommand.....	820
10.1.19.3 show-service-adminuser Subcommand.....	821
10.1.19.4 create-connector-security-map Subcommand.....	822
10.1.19.5 delete-connector-security-map Subcommand.....	823
10.1.19.6 update-connector-security-map Subcommand.....	824
10.1.19.7 list-connector-security-maps Subcommand.....	825
10.1.19.8 create-password-alias Subcommand.....	826
10.1.19.9 delete-password-alias Subcommand.....	828
10.1.19.10 list-password-aliases Subcommand.....	828
10.1.19.11 update-password-alias Subcommand.....	829
10.1.19.12 create-ssl Subcommand.....	830
10.1.19.13 delete-ssl Subcommand.....	832
10.1.19.14 create-auth-realm Subcommand.....	833
10.1.19.15 delete-auth-realm Subcommand.....	834
10.1.19.16 list-auth-realms Subcommand.....	835
10.1.19.17 create-file-user Subcommand.....	836
10.1.19.18 delete-file-user Subcommand.....	837
10.1.19.19 update-file-user Subcommand.....	838
10.1.19.20 list-file-users Subcommand.....	840
10.1.19.21 list-file-groups Subcommand.....	840
10.1.20 Subcommands - Category: Database Operation.....	841
10.1.20.1 start-database Subcommand.....	841
10.1.20.2 stop-database Subcommand.....	842
10.1.21 EJB Dispatch.....	843
10.1.21.1 create-ejb-dispatch-target Subcommand.....	843
10.1.21.2 delete-ejb-dispatch-target Subcommand.....	844
10.1.21.3 disable-ejb-dispatch-target Subcommand.....	845
10.1.21.4 enable-ejb-dispatch-target Subcommand.....	846
10.1.21.5 list-ejb-dispatch-targets Subcommand.....	847
10.1.22 Session Recovery.....	849
10.1.22.1 create-http-listener Subcommand.....	849
10.1.22.2 create-virtual-server Subcommand.....	850
10.2 appclient.....	851
10.3 capture-schema.....	852
10.4 ijdastart.....	855
10.5 ijdastat.....	855
10.6 ijdastop.....	856
10.7 ijinit.....	857
10.8 ijsetoperatorid.....	863
10.9 imqbrokerd.....	865
10.10 imqcmd.....	866

10.11 imqsvcadmind.....	884
10.11.1 install Subcommand.....	885
10.11.2 remove Subcommand.....	887
10.11.3 query Subcommand.....	887
10.12 imqusermgr.....	888
10.12.1 add Subcommand.....	889
10.12.2 delete Subcommand.....	890
10.12.3 update Subcommand.....	891
10.12.4 list Subcommand.....	892
10.13 ijnastart.....	893
10.14 ijnastat.....	893
10.15 ijnastop.....	894
10.16 ijwsimport.....	895
10.17 jspc.....	898
10.18 ijsmartsetup.....	899
10.19 Definition Items that can be Executed by the asadmin Command.....	903
10.19.1 Definition Items of the Application.....	904
10.19.1.1 Definition Items of the applications.lifecycle-module.....	904
10.19.1.2 Definition Items of the applications.j2ee-application.....	905
10.19.1.3 Definition Items of the applications.ejb-module.....	906
10.19.1.4 Definition Items of the applications.web-module.....	907
10.19.1.5 Definition Items of the applications.connector-module.....	907
10.19.1.6 Definition Items of the applications.applient-module.....	908
10.19.2 Definition Items of the Resources.....	908
10.19.2.1 Definition Items of the resources.custom-resource.....	908
10.19.2.2 Definition Items of the resources.external-jndi-resource.....	909
10.19.2.3 Definition Items of the resources.jdbc-resource.....	910
10.19.2.4 Definition Items of the resources.mail-resource.....	910
10.19.2.5 Definition Items of the resources.admin-object-resource.....	911
10.19.2.6 Definition Items of the resources.connector-resource.....	912
10.19.2.7 Definition Items of the resources.resource-adapter-config.....	913
10.19.2.8 Definition Items of the resources.jdbc-connection-pool.....	913
10.19.2.9 Definition Items of the resources.connector-connection-pool.....	914
10.19.3 Definition Items of the configs.....	915
10.19.3.1 Definition Items of the configs.config.name.....	915
10.19.3.2 Definition Items of the configs.config.http-service.....	915
10.19.3.3 Definition Items of the configs.config.iiop-service.....	918
10.19.3.4 Definition Items of the configs.config.admin-service.....	918
10.19.3.5 Definition Items of the configs.config.connector-service.....	919
10.19.3.6 Definition Items of the configs.config.web-container.....	919
10.19.3.7 Definition Items of the configs.config.ejb-container.....	920
10.19.3.8 Definition Items of configs.config.ejb-container-availability.....	921
10.19.3.9 Definition Items of the configs.config.mdb-container.....	921
10.19.3.10 Definition Items of the configs.config.jms-service.....	921
10.19.3.11 Definition Items of the configs.config.log-service.....	922
10.19.3.12 Definition Items of the configs.config.security-service.....	922
10.19.3.13 Definition Items of the configs.config.transaction-service.....	923
10.19.3.14 Definition Items of the configs.config.monitoring-service.....	923
10.19.3.15 Definition Items of the configs.config.java-config.....	924
10.19.3.16 Definition Items of the configs.config.thread-pools.....	925
10.19.3.17 Definition Items of the configs.config.group-management-service.....	925
10.19.3.18 Definition Items of the configs.config.system-property.....	926
10.19.3.19 Definition Items of the configs.config.ijservice-control.....	926
10.19.3.20 Definition Items of configs.config.application-ref.....	927
10.19.3.21 Definition Items of configs.config.availability-service.....	927
10.19.4 Definition Items of the Servers.....	927
10.19.5 Definition Items of the Clusters.....	927

10.19.6 Definition Items of the node-agents.....	929
10.19.6.1 Definition Items of the node-agents.node-agent.log-service.....	929
10.19.7 Definition Items of the system-property.....	930
10.19.8 Definition Items of the Domain.....	930
Chapter 11 Interstage Operation Management Service Commands.....	931
11.1 isomstart.....	931
11.2 isomstat.....	932
11.3 isomstop.....	933
Chapter 12 Backup Commands.....	934
12.1 ijbackup.....	934
12.2 ijrestore.....	935
Chapter 13 Java EE Messages.....	939
13.1 Messages that Contain "ACC" in the Message ID.....	940
13.1.1 ACC000 to ACC099.....	940
13.1.2 ACC100 to ACC199.....	942
13.2 Messages that Contain "ADM" in the Message ID.....	944
13.2.1 ADM0000 to ADM0099.....	944
13.2.2 ADM1000 to ADM1099.....	945
13.2.3 ADM1500 to ADM1599.....	946
13.2.4 ADM1700 to ADM1799.....	947
13.2.5 ADM5600 to ADM5699.....	948
13.2.6 ADM5800 to ADM5899.....	948
13.3 Messages that Contain "ADMVAL" in the Message ID.....	949
13.3.1 ADMVAL1000 to ADMVAL1099.....	949
13.3.2 ADMVAL2000 to ADMVAL2099.....	964
13.4 Messages that Contain "APPCONFIG" in the Message ID.....	965
13.4.1 APPCONFIG1000 to APPCONFIG1099.....	965
13.5 Messages that Contain "APPDEP" in the Message ID.....	966
13.5.1 APPDEP1000 to APPDEP1099.....	966
13.5.2 APPDEP2000 to APPDEP2099.....	981
13.5.3 APPDEP3000 to APPDEP3099.....	982
13.5.4 APPDEP4000 to APPDEP4099.....	986
13.6 Messages that Contain "CLI" in the Message ID.....	987
13.6.1 CLI000 to CLI099.....	987
13.6.2 CLI100 to CLI199.....	990
13.6.3 CLI300 to CLI399.....	997
13.6.4 CLI400 to CLI499.....	1006
13.7 Messages that Contain "CORE" in the Message ID.....	1007
13.7.1 CORE5000 to CORE5099.....	1007
13.7.2 CORE5100 to CORE5199.....	1013
13.7.3 CORE5300 to CORE5399.....	1013
13.8 Messages that Contain "DPL" in the Message ID.....	1014
13.8.1 DPL5000 to DPL5099.....	1014
13.8.2 DPL5300 to DPL5399.....	1014
13.8.3 DPL8000 to DPL8099.....	1014
13.9 Messages that Contain "DTX" in the Message ID.....	1017
13.9.1 DTX5000 to DTX5099.....	1017
13.10 Messages that Contain "EEADM" in the Message ID.....	1020
13.10.1 EEADM0000 to EEADM0099.....	1020
13.10.2 EEADM0300 to EEADM0399.....	1022
13.11 Messages that Contain "EJB" in the Message ID.....	1024
13.11.1 EJB5000 to EJB5099.....	1024
13.11.2 EJB5100 to EJB5199.....	1026
13.11.3 EJB6000 to EJB6099.....	1034
13.11.4 EJB6100 to EJB6199.....	1038

13.11.5 EJB6900 to EJB6999.....	1040
13.12 Messages that Contain "EJBD" in the Message ID.....	1040
13.12.1 EJBD0000 to EJBD0099.....	1040
13.13 Messages that Contain "GMS" in the Message ID.....	1046
13.13.1 GMS1000 to GMS1099.....	1046
13.14 Messages that Contain "GUI" in the Message ID.....	1049
13.14.1 GUI1000 to GUI1099.....	1049
13.15 Messages that Contain "jdas" in the Message ID.....	1049
13.15.1 jdas10000 to jdas10099.....	1049
13.16 Messages that Contain "IJINIT" in the Message ID.....	1057
13.16.1 IJINIT0000 to IJINIT0999.....	1057
13.16.2 IJINIT1000 to IJINIT1999.....	1064
13.17 Messages that Contain "ijmq" in the Message ID.....	1066
13.17.1 ijqm10000 to ijqm19999.....	1066
13.17.2 ijqm20000 to ijqm29999.....	1066
13.18 Messages that Contain "IJMQ" in the Message ID.....	1073
13.18.1 IJMQ_1000 to IJMQ_1099.....	1073
13.18.2 IJMQ_A3000 to IJMQ_A3099.....	1075
13.18.3 IJMQ_A3100 to IJMQ_A3199.....	1077
13.18.4 IJMQ_B0000 to IJMQ_B0099.....	1083
13.18.5 IJMQ_B1000 to IJMQ_B1099.....	1086
13.18.6 IJMQ_B1100 to IJMQ_B1199.....	1091
13.18.7 IJMQ_B1200 to IJMQ_B1299.....	1098
13.18.8 IJMQ_B1300 to IJMQ_B1399.....	1100
13.18.9 IJMQ_B2000 to IJMQ_B2099.....	1100
13.18.10 IJMQ_B2100 to IJMQ_B2199.....	1106
13.18.11 IJMQ_B3000 to IJMQ_B3099.....	1110
13.18.12 IJMQ_B3100 to IJMQ_B3199.....	1117
13.18.13 IJMQ_B3200 to IJMQ_B3299.....	1121
13.18.14 IJMQ_B4000 to IJMQ_B4099.....	1121
13.18.15 IJMQ_B4100 to IJMQ_B4199.....	1127
13.18.16 IJMQ_B4200 to IJMQ_B4299.....	1132
13.18.17 IJMQ_B4300 to IJMQ_B4399.....	1133
13.18.18 IJMQ_C4000 to IJMQ_C4099.....	1135
13.18.19 IJMQ_C4100 to IJMQ_C4199.....	1150
13.18.20 IJMQ_E200 to IJMQ_E299.....	1150
13.18.21 IJMQ_E300 to IJMQ_E399.....	1151
13.18.22 IJMQ_E400 to IJMQ_E499.....	1151
13.18.23 IJMQ_I100 to IJMQ_I199.....	1152
13.18.24 IJMQ_I500 to IJMQ_I599.....	1152
13.18.25 IJMQ_S2000 to IJMQ_S2099.....	1152
13.18.26 IJMQ_S3000 to IJMQ_S3099.....	1153
13.18.27 IJMQ_W23000 to IJMQ_W2099.....	1154
13.19 Messages that Contain "ijna" in the Message ID.....	1154
13.19.1 ijna10000 to ijna10099.....	1154
13.20 Messages that Contain "IJSETOPID" in the Message ID.....	1163
13.20.1 IJSETOPID000 to IJSETOPID099.....	1163
13.21 Messages that Contain "IJSETSCMD" in the Message ID.....	1166
13.21.1 IJSETSCMD000 to IJSETSCMD099.....	1166
13.22 Messages that Contain "INSTANCE" in the Message ID.....	1167
13.22.1 INSTANCE1000 to INSTANCE1099.....	1167
13.23 Messages that Contain "IOP" in the Message ID.....	1168
13.23.1 IOP00010200 to IOP00010299.....	1168
13.23.2 IOP00100000 to IOP00100099.....	1169
13.23.3 IOP00110200 to IOP00110299.....	1169
13.23.4 IOP00110300 to IOP00110399.....	1170
13.23.5 IOP00111200 to IOP00111299.....	1171

13.23.6 IOP00410200 to IOP00410299.....	1171
13.23.7 IOP00410800 to IOP00410899.....	1175
13.23.8 IOP00511200 to IOP00511299.....	1176
13.23.9 IOP00710200 to IOP00710299.....	1176
13.23.10 IOP00710300 to IOP00710399.....	1177
13.23.11 IOP00810200 to IOP00810299.....	1178
13.23.12 IOP01000000 to IOP01000099.....	1180
13.23.13 IOP01210200 to IOP01210299.....	1181
13.23.14 IOP01211200 to IOP01211299.....	1181
13.23.15 IOP01211400 to IOP01211499.....	1182
13.23.16 IOP01310200 to IOP01310299.....	1182
13.23.17 IOP01700000 to IOP01700099.....	1182
13.23.18 IOP01710200 to IOP01710299.....	1183
13.23.19 IOP02310200 to IOP02310299.....	1183
13.23.20 IOP02311000 to IOP02311099.....	1183
13.23.21 IOP02400000 to IOP02400099.....	1184
13.23.22 IOP02410200 to IOP02410299.....	1184
13.23.23 IOP5000 to IOP5099.....	1185
13.24 Messages that Contain "ISCOMMON" in the Message ID.....	1187
13.24.1 ISCOMMON0000 to ISCOMMON0099.....	1187
13.25 Messages that Contain "JACCPVD" in the Message ID.....	1188
13.25.1 JACCPVD000000 to JACCPVD000099.....	1188
13.25.2 JACCPVD10000 to JACCPVD10099.....	1189
13.26 Messages that Contain "JAXWS" in the Message ID.....	1191
13.26.1 JAXWS0000 to JAXWS0099.....	1191
13.26.2 JAXWS0100 to JAXWS0199.....	1197
13.26.3 JAXWS0200 to JAXWS0299.....	1199
13.26.4 JAXWS0300 to JAXWS0399.....	1201
13.26.5 JAXWS0600 to JAXWS0699.....	1204
13.26.6 JAXWS0700 to JAXWS0799.....	1205
13.26.7 JAXWS0800 to JAXWS0899.....	1207
13.26.8 JAXWS0900 to JAXWS0999.....	1213
13.26.9 JAXWS1000 to JAXWS1099.....	1216
13.26.10 JAXWS1100 to JAXWS1199.....	1221
13.26.11 JAXWS2000 to JAXWS2099.....	1227
13.27 Messages that Contain "JBIMA" in the Message ID.....	1231
13.27.1 JBIMA1600 to JBIMA1699.....	1231
13.27.2 JBIMA1700 to JBIMA1799.....	1232
13.28 Messages that Contain "JDBCRA" in the Message ID.....	1233
13.28.1 JDBCRA0000 to JDBCRA0099.....	1233
13.29 Messages that Contain "JDO" in the Message ID.....	1238
13.29.1 JDO7000 to JDO7099.....	1238
13.29.2 JDO71000 to JDO71099.....	1239
13.29.3 JDO71100 to JDO71199.....	1241
13.29.4 JDO72300 to JDO72399.....	1242
13.29.5 JDO73000 to JDO73099.....	1246
13.29.6 JDO74000 to JDO74099.....	1247
13.29.7 JDO75000 to JDO75099.....	1253
13.29.8 JDO75200 to JDO75299.....	1254
13.29.9 JDO75300 to JDO75399.....	1255
13.29.10 JDO76100 to JDO76199.....	1257
13.29.11 JDO76200 to JDO76299.....	1258
13.29.12 JDO76300 to JDO76399.....	1259
13.29.13 JDO76400 to JDO76499.....	1260
13.29.14 JDO76500 to JDO76599.....	1260
13.29.15 JDO76600 to JDO76699.....	1261
13.29.16 JDO77000 to JDO77099.....	1262

13.29.17 JDO79100 to JDO79199.....	1263
13.29.18 JDO79200 to JDO79299.....	1264
13.29.19 JDO82000 to JDO82099.....	1265
13.30 Messages that Contain "JNDIMONITOR" in the Message ID.....	1266
13.30.1 JNDIMONITOR000 to JNDIMONITOR099.....	1266
13.31 Messages that Contain "JPA" in the Message ID.....	1266
13.31.1 JPA0000 to JPA0099.....	1266
13.32 Messages that Contain "JSF" in the Message ID.....	1267
13.32.1 JSF1000 to JSF1099.....	1267
13.33 Messages that Contain "JTS" in the Message ID.....	1267
13.33.1 JTS5000 to JTS5099.....	1267
13.33.2 JTS6000 to JTS6099.....	1275
13.34 Messages that Contain "JXTAX" in the Message ID.....	1276
13.34.1 JXTAX0000 to JXTAX0099.....	1276
13.35 Messages that Contain "LAUNCHER" in the Message ID.....	1278
13.35.1 LAUNCHER000 to LAUNCHER099.....	1278
13.36 Messages that Contain "LCM" in the Message ID.....	1279
13.36.1 LCM0100 to LCM0199.....	1279
13.36.2 LCM0200 to LCM0299.....	1279
13.37 Messages that Contain "LDR" in the Message ID.....	1280
13.37.1 LDR5000 to LDR5099.....	1280
13.37.2 LDR5200 to LDR5299.....	1283
13.37.3 LDR5300 to LDR5399.....	1284
13.38 Messages that Contain "MDB" in the Message ID.....	1284
13.38.1 MDB00000 to MDB00099.....	1284
13.38.2 MDB00100 to MDB001099.....	1287
13.39 Messages that Contain "METHODLOG" in the Message ID.....	1288
13.39.1 METHODLOG0000 to METHODLOG0099.....	1288
13.40 Messages that Contain "MIMEPULL" in the Message ID.....	1289
13.40.1 MIMEPULL0000 to MIMEPULL0099.....	1289
13.41 Messages that Contain "ML" in the Message ID.....	1289
13.41.1 ML1000 to ML1099.....	1289
13.42 Messages that Contain "MQJMSRA" in the Message ID.....	1290
13.42.1 MQJMSRA_1000 to MQJMSRA_1099.....	1290
13.42.2 MQJMSRA_AS4000 to MQJMSRA_AS4099.....	1290
13.42.3 MQJMSRA_CL1100 to MQJMSRA_CL1199.....	1291
13.42.4 MQJMSRA_CL2000 to MQJMSRA_CL2099.....	1291
13.42.5 MQJMSRA_DC2000 to MQJMSRA_DC2099.....	1291
13.42.6 MQJMSRA_DMP4000 to MQJMSRA_DMP4099.....	1291
13.42.7 MQJMSRA_DP4000 to MQJMSRA_DP4099.....	1292
13.42.8 MQJMSRA_EB1100 to MQJMSRA_EB1199.....	1292
13.42.9 MQJMSRA_EC1100 to MQJMSRA_EC1199.....	1293
13.42.10 MQJMSRA_EC3000 to MQJMSRA_EC3099.....	1293
13.42.11 MQJMSRA_EC4000 to MQJMSRA_EC4099.....	1293
13.42.12 MQJMSRA_MC2000 to MQJMSRA_MC2099.....	1294
13.42.13 MQJMSRA_MC4000 to MQJMSRA_MC4099.....	1294
13.42.14 MQJMSRA_MF1100 to MQJMSRA_MF1199.....	1295
13.42.15 MQJMSRA_MR1100 to MQJMSRA_MR1199.....	1295
13.42.16 MQJMSRA_MR2000 to MQJMSRA_MR2099.....	1295
13.42.17 MQJMSRA_RA1100 to MQJMSRA_RA1199.....	1295
13.42.18 MQJMSRA_RA2000 to MQJMSRA_RA2099.....	1296
13.42.19 MQJMSRA_RA4000 to MQJMSRA_RA4099.....	1297
13.42.20 MQJMSRA_SA4000 to MQJMSRA_SA4099.....	1297
13.42.21 MQJMSRA_TD4000 to MQJMSRA_TD4099.....	1298
13.43 Messages that Contain "NAGT" in the Message ID.....	1298
13.43.1 NAGT0000 to NAGT0099.....	1298
13.43.2 NAGT1000 to NAGT1099.....	1304

13.44 Messages that Contain "NAM" in the Message ID.....	1307
13.44.1 NAM0000 to NAM0099.....	1307
13.44.2 NAM1000 to NAM1099.....	1309
13.44.3 NAM2000 to NAM2099.....	1310
13.45 Messages that Contain "OM" in the Message ID.....	1312
13.45.1 OM1000 to OM1099.....	1312
13.45.2 OM1100 to OM1199.....	1333
13.45.3 OM2000 to OM2099.....	1334
13.45.4 OM2100 to OM2199.....	1349
13.45.5 OM2200 to OM2299.....	1352
13.45.6 OM2300 to OM2399.....	1354
13.45.7 OM2400 to OM2499.....	1366
13.45.8 OM2500 to OM2599.....	1369
13.45.9 OM2600 to OM2699.....	1370
13.45.10 OM2900 to OM2999.....	1371
13.45.11 OM3000 to OM3099.....	1374
13.45.12 OM3100 to OM3199.....	1377
13.45.13 OM3200 to OM3299.....	1379
13.45.14 OM4000 to OM4099.....	1382
13.45.15 OM4100 to OM4199.....	1392
13.45.16 OM4200 to OM4299.....	1395
13.46 Messages that Contain "PWC" in the Message ID.....	1397
13.46.1 PWC1000 to PWC1099.....	1397
13.46.2 PWC1200 to PWC1299.....	1398
13.46.3 PWC1300 to PWC1399.....	1402
13.46.4 PWC1400 to PWC1499.....	1406
13.46.5 PWC1600 to PWC1699.....	1408
13.46.6 PWC2500 to PWC2599.....	1408
13.46.7 PWC2700 to PWC2799.....	1408
13.46.8 PWC3000 to PWC3099.....	1411
13.46.9 PWC3500 to PWC3599.....	1416
13.46.10 PWC3900 to PWC3999.....	1416
13.46.11 PWC4000 to PWC4099.....	1420
13.46.12 PWC4200 to PWC4299.....	1421
13.46.13 PWC4400 to PWC4499.....	1421
13.46.14 PWC4600 to PWC4699.....	1422
13.46.15 PWC5000 to PWC5099.....	1423
13.46.16 PWC5300 to PWC5399.....	1424
13.46.17 PWC5500 to PWC5599.....	1424
13.46.18 PWC5700 to PWC5799.....	1425
13.46.19 PWC5900 to PWC5999.....	1425
13.46.20 PWC6000 to PWC6099.....	1427
13.46.21 PWC6100 to PWC6199.....	1431
13.46.22 PWC6200 to PWC6299.....	1438
13.46.23 PWC6300 to PWC6399.....	1442
13.46.24 PWC7000 to PWC7099.....	1444
13.47 Messages that Contain "RAR" in the Message ID.....	1450
13.47.1 RAR5000 to RAR5099.....	1450
13.47.2 RAR5100 to RAR5199.....	1458
13.47.3 RAR6000 to RAR6099.....	1463
13.47.4 RAR7000 to RAR7099.....	1470
13.47.5 RAR7100 to RAR7199.....	1473
13.47.6 RAR8000 to RAR8099.....	1475
13.47.7 RAR9000 to RAR9099.....	1476
13.48 Messages that Contain "SEC" in the Message ID.....	1480
13.48.1 SEC1000 to SEC1099.....	1480
13.48.2 SEC1100 to SEC1199.....	1481

13.48.3 SEC5000 to SEC5099.....	1483
13.48.4 SEC9000 to SEC9099.....	1484
13.49 Messages that Contain "SERVER" in the Message ID.....	1487
13.49.1 SERVER1000 to SERVER1099.....	1487
13.49.2 SERVER1100 to SERVER1199.....	1488
13.50 Messages that Contain "SHOALX" in the Message ID.....	1489
13.50.1 SHOALX0000 to SHOALX0099.....	1489
13.50.2 SHOALX1000 to SHOALX1099.....	1493
13.50.3 SHOALX2000 to SHOALX2099.....	1495
13.51 Messages that Contain "SMGT" in the Message ID.....	1499
13.51.1 SMGT0000 to SMGT0099.....	1499
13.52 Messages that Contain "SYNC" in the Message ID.....	1500
13.52.1 SYNC000 to SYNC099.....	1500
13.53 Messages that Contain "SYSSVC" in the Message ID.....	1504
13.53.1 SYSSVC1000 to SYSSVC1099.....	1504
13.54 Messages that Contain "TARGET" in the Message ID.....	1505
13.54.1 TARGET1000 to TARGET1099.....	1505
13.55 Messages that Contain "TLS" in the Message ID.....	1506
13.55.1 TLS1000 onwards.....	1506
13.56 Messages that Contain "UTIL60" in the Message ID.....	1506
13.56.1 UTIL6000 to UTIL6099.....	1506
13.57 Messages that Contain "WEB" in the Message ID.....	1507
13.57.1 WEB0100 to WEB0199.....	1507
13.57.2 WEB0200 to WEB0299.....	1510
13.57.3 WEB0300 to WEB0399.....	1511
13.57.4 WEB0600 to WEB0699.....	1514
13.57.5 WEB0700 to WEB0799.....	1515
13.57.6 WEB1500 to WEB1599.....	1517
13.57.7 WEB5000 to WEB5099.....	1524
13.58 Messages that Contain "WEBSEC" in the Message ID.....	1524
13.58.1 WEBSEC00000 to WEBSEC00099.....	1524
13.59 Messages that Contain "WSCONTAINER" in the Message ID.....	1525
13.59.1 WSCONTAINER0000 to WSCONTAINER0099.....	1525
13.59.2 WSCONTAINER2000 to WSCONTAINER2099.....	1526
13.59.3 WSCONTAINER2100 to WSCONTAINER2199.....	1528
13.60 Messages that Contain "WSMGMT" in the Message ID.....	1531
13.60.1 WSMGMT0000 to WSMGMT0099.....	1531
13.61 Messages Output to the Server Log when Java EE is Used.....	1531
13.62 Messages Output Without a Message ID During a JMS Operation when Java EE is Used.....	1533
13.62.1 Messages Output for the imqsvcadm Command.....	1533
13.62.2 Messages Output for the imqcmd Command.....	1534
13.62.3 Messages Output for imqbrokerd.....	1537
13.62.4 Messages Starting with "imq" Output Using the Java EE Operation Commands.....	1539
13.62.5 Messages Output to the Broker Log.....	1540
13.63 Messages Output to the Interstage Java EE Admin Console.....	1540
13.63.1 Messages Output to the Interstage Java EE Admin Console.....	1540
13.64 Messages Output by Executing the ijsmartsetup Command.....	1541
13.64.1 Messages Output when the ijsmartsetup Command is Executed.....	1541
13.65 Exception Information Output when Java EE is Used.....	1544
13.65.1 Exception information starting with com.sun.enterprise.connectors.....	1544
13.65.2 Exception information starting with com.sun.enterprise.security.auth.realm.....	1545
13.65.3 Exception information starting with com.sun.messaging.....	1545
13.65.4 Exception information starting with java or javax.....	1546
13.65.5 Exception information starting with oracle.toplink.essentials.....	1557
13.65.6 Exception information during IIOP communication.....	1561
Chapter 14 Troubleshooting.....	1567

14.1 Command Execution Errors.....	1567
14.1.1 Abnormalities Relating to the init Command.....	1568
14.2 Operational Errors.....	1568
14.2.1 Operating Environment-Related Errors.....	1568
14.2.2 Action for Garbled Characters in the Java EE Application.....	1575
14.2.3 Application Operational Errors.....	1577
14.2.4 Dependency Injection Failure Errors.....	1577
14.2.5 Nonpaged Pool Leaks in Windows Server(R) 2003.....	1578
14.2.6 Abnormalities when Large-scale Files are Used.....	1579
14.2.7 When SSL Communication Fails.....	1579
14.2.8 Cannot Connect to Interstage Directory Service.....	1580
14.2.9 When a Message is Output Stating that Authentication has Failed.....	1580
14.2.10 Errors Relating to Additional Properties.....	1582
14.3 Web Application Development Errors.....	1582
14.4 Abnormalities during EJB Application Development/operation.....	1584
14.5 EJB Dispatch Feature Errors.....	1584
14.6 Interstage Java EE Admin Console Operational Errors.....	1584
14.6.1 Errors when the Interstage Java EE Admin Console Starts Up.....	1584
14.6.2 Login Errors.....	1586
14.6.3 Window Errors.....	1586
14.6.4 Other Errors.....	1589
14.7 Abnormalities in Web Service/Web Service Client Development/Operations.....	1591
14.8 Abnormalities in JMS Development/Operations.....	1591
14.9 Java EE Security Errors.....	1594
14.10 Log Errors.....	1594
14.11 Uninstall Errors.....	1595
Chapter 15 Samples.....	1596
15.1 Java EE Samples.....	1596
Appendix A Java DB.....	1597
A.1 Environment Settings.....	1597
A.2 Java DB Operations.....	1597
A.3 Java DB System Directory.....	1598
A.4 SQL.....	1599
A.5 URL Attribute when there is a Connection to the Database.....	1601
A.6 Datasource Properties.....	1601
A.7 Security Functions.....	1602
A.8 Derby Properties.....	1603
A.9 Tools.....	1603
A.10 Troubleshooting.....	1603
Appendix B File Configuration.....	1605
B.1 Interstage Java EE DAS Service File Configuration.....	1605
B.2 Interstage Java EE Node Agent Service File Configuration.....	1606
B.3 IJServer Cluster File Configuration.....	1606
Appendix C Tutorial.....	1609
C.1 Application Overview (Account Management Tool).....	1609
C.2 Flow from Environment Settings until Operation.....	1609
C.3 Advance Preparation Before Environment Settings.....	1610
C.3.1 Starting each Service.....	1610
C.3.2 Database Environment Settings.....	1610
C.4 Environment Settings.....	1611
C.4.1 Logging in to the Interstage Java EE Admin Console.....	1611
C.4.2 Creating the IJServer Cluster.....	1613
C.4.3 Creating the Resource.....	1613
C.4.4 Deployment.....	1614

C.5 Application Operation.....1615
C.5.1 Starting the IIServer Cluster.....1615
C.5.2 Executing the Application.....1615

Chapter 1 Release Information

This chapter describes software requirements, limitations, and notes for the Java EE runtime environment.

1.1 Software Requirements

This section lists the software required to use Interstage Java EE.

1.1.1 JRE/JDK Version

The Java EE runtime environment supports the following JDK/JRE versions.

- Server package
 - JDK 6
- Client package
 - JDK 6 or JRE 6

1.1.2 Application Development Environment

Table 1.1 Software Required for Application Development

No.	Function Name	Product Name	Version
1	For development of Java EE applications	Interstage Studio	V9.2.0

1.1.3 Database

- The efficiency of developing applications is improved when the Java DB, which is packaged with the product, is used. It has been bundled to improve application development efficiency, so it should only be used during development. For details on the software required, refer to the "Java DB" appendix.
- The operating conditions for the database and the JDBC driver will vary depending on the operating system that is used. For details on the operating conditions and extent of support for the database and the JDBC driver, check with the provider.
- In Solaris, in 32-bit operating systems, use the 32-bit JDBC driver, and in 64-bit operating systems, use the 64-bit JDBC driver. When Solaris 11 is used, use a JDBC driver that supports Solaris 11.

For business operations, one of the following must be used as the database.

Running Applications that use Symfoware

Table 1.2 Running Applications Using Symfoware (*1)

No.	Platform	Supported JDBC driver	Version (*2)
1	Windows®	Symfoware Server client function	10.1.0 or later
2	Solaris	Symfoware Server client function	Not determined
3	Red Hat Enterprise Linux 5 (for x86) Red Hat Enterprise Linux 5 (for Intel64)	Symfoware Server client function	10.1.0 or later
4	Red Hat Enterprise Linux 6 (for x86) Red Hat Enterprise Linux 6 (for Intel64)	Symfoware Server client function	10.1.0 or later

*1 When using Symfoware Server, use of Symfoware Server Connection Manager is recommended.

*2 Use a JDBC driver that supports the same CPU architecture as Interstage.

Running Applications that Use Oracle

Table 1.3 Running Applications Using Oracle

No.	Platform	Supported JDBC driver	Version
1	Windows®	Oracle JDBC Driver	11.1, 11.2, 12.1
2	Solaris	Oracle JDBC Driver	11.1, 11.2, 12.1
3	Red Hat Enterprise Linux 5 (for x86) Red Hat Enterprise Linux 5 (for Intel64)	Oracle JDBC Driver	11.1, 11.2, 12.1
4	Red Hat Enterprise Linux 6 (for x86) Red Hat Enterprise Linux 6 (for Intel64)	Oracle JDBC Driver	11.1, 11.2, 12.1

- For Oracle, use the JDBC driver provided by Oracle Corporation.
- When transaction service or JTA global transactions are used, assign the following privileges for the runtime user:
 - EXECUTE privileges on SYS.DBMS_SYSTEM
- When global transaction recovery is executed, assign the following privileges for the runtime user:
 - SELECT privileges on DBA_PENDING_TRANSACTIONS
 - EXECUTE privileges on SYS.DBMS_XA
 - SELECT privileges on SYS.PENDING_TRANS\$

If the Oracle patch that includes the updates for the Oracle Database 11g Release 1 (or earlier) version Oracle database server and Oracle Bug#5945463 has not been applied, assign the following privileges as well:

- EXECUTE privileges on SYS.DBMS_SYSTEM
- The Java SE that is supported by each JDBC driver is different, therefore select the JDBC driver according to the Java SE.
- With the Oracle JDBC Driver version 11.1.0.6, ConnectionEventListener is not implemented, therefore an error may occur if the following resource types are used. If these resource types are used, a patch for the ConnectionEventListener will have to be applied. This patch is available from Oracle Corporation.
 - javax.sql.XADataSource
 - javax.sql.ConnectionPoolDataSource
- Use a JDBC driver that supports the same CPU architecture as Interstage.
- When Oracle is used, the Oracle Universal Connection Pool (UCP) for JDBC feature can be used.
 - When using the Oracle UCP for JDBC feature, set the Connection Pool "Pooling" attribute to "false". (*1)
- When Oracle is used, linkage with Oracle Real Application Clusters (RAC) is possible.
 - When using the high-speed connection failover feature in an RAC environment of Oracle10g or later, set the Connection Pool "Pooling" attribute to "false". (*1)
 - When linkage with Oracle RAC is used, it is recommended that operations are performed where the Connection Pool "Creation retry count" and "Retry interval" attributes have been set. (*1)
 - When using Oracle RAC in the global transaction (XADataSource), use the Oracle UCP for JDBC feature.
- The JDBC4.1 specification features supported in Oracle JDBC Driver version 12.1 cannot be used.

*1 For details on the Connection Pool attribute settings, refer to "JDBC Connection Pool Definition Items" in the "List of Definition Items" chapter.

Running Applications that Use SQL Server

Table 1.4 Running Applications Using SQL Server

No.	Platform	Supported JDBC driver	Version (*1) (*2)
1	Windows®	Microsoft SQL Server JDBC Driver	2.0, 3.0

No.	Platform	Supported JDBC driver	Version (*1) (*2)
		Microsoft JDBC Driver for SQL Server	4.0
2	Solaris	Microsoft SQL Server JDBC Driver	2.0, 3.0
		Microsoft JDBC Driver for SQL Server	4.0
3	Red Hat Enterprise Linux 5 (for x86)	Microsoft SQL Server JDBC Driver	2.0, 3.0
	Red Hat Enterprise Linux 5 (for Intel64)	Microsoft JDBC Driver for SQL Server	4.0
4	Red Hat Enterprise Linux 6 (for x86)	Microsoft SQL Server JDBC Driver	2.0, 3.0
	Red Hat Enterprise Linux 6 (for Intel64)	Microsoft JDBC Driver for SQL Server	4.0

*1 This cannot be used when the global transaction functionality is used.

*2 If an SQL Server JDBC Driver is used with Windows Server® 2003 x64 Editions, apply Service Pack 4 or later.

1.1.4 Web Server

Apart from Interstage HTTP Server, linkage with the web server is also supported for the following products:

Table 1.5 Web Server for Application Execution

No.	Product name	Version
1	Windows32/64 Microsoft® Internet Information Services	6.0, 7.0, 7.5, 8.0

1.1.5 High Availability

Table 1.6 Operation/Management Products Required for Application Execution

No.	Function name	Product name	Version
1	Building a load balancing system that links with IPCOM	IPCOM (*1)	-
2	Building a high reliability system using PRIMECLUSTER (*2)	Solaris32/64 Linux32/64 PRIMECLUSTER	4.2 or later
3	Building a high reliability system using Microsoft Cluster Service (MSCS)	Windows32/64 Microsoft Cluster Service (MSCS) Microsoft® Windows Server® 2008 failover clustering feature	-

*1 To perform IOP load balancing using the IPCOM linkage feature, the IPCOM model must support IOP load balancing. For details, refer to the IPCOM manual.

*2 For details on how Interstage Application Server is used with PRIMECLUSTER, refer to one of the PRIMECLUSTER manuals.

1.1.6 Management Console

No.	Function name	Product name	Version
1	Interstage Java EE Admin Console Interstage Management Console	Windows® Internet Explorer® (32 bit)	7, 8, 9, 10

1.1.7 Operation/Management

No.	Function name	Product name	Version
1	 Transaction breakdown analysis that is linked with Systemwalker Service Quality Coordinator (measuring the processing time for each Java EE application component)	Systemwalker Service Quality Coordinator (Agent) (*1) (*2)	V15.0 or later

*1 Use a product that supports the same CPU architecture as Interstage.

*2 To use the transaction breakdown analysis tool, apply the Systemwalker Service Quality Coordinator PG90780 fix.

1.2 Restrictions

There are restrictions on the use of some Interstage Java EE functions described in the manuals.

1.2.1 Restrictions on Application Operations

Table 1.7 Restrictions on Application Operations

No.	Restriction	Remarks	Date of removal
1	<p>If all conditions below are satisfied, then "HTTP Status 405" is displayed in the web browser and the sending of the request fails.</p> <ol style="list-style-type: none"> The Java EE security function is used in a web application, and There is FORM authentication, and Only POST was specified for <http-method> in the web application deployment descriptor (web.xml), and An HTTP POST request is sent to the web application in 1., for which the content for the setting in 3. is enabled, and There was transition from the FORM authentication window to the intended content 	Specify GET for <http-method> as well.	Not determined
2	<p>If all conditions below are satisfied, then the request body in the web application is empty even if the sent HTTP POST request includes the body.</p> <ol style="list-style-type: none"> The Java EE security function is used in a web application, and There is FORM authentication, and The request body was obtained in Servlet or JSP using the methods below, and <ul style="list-style-type: none"> - javax.servlet.ServletRequest#getReader() - javax.servlet.ServletRequest#getInputStream() 	Create the application so that the FORM authentication window is not displayed (=authentication is complete) when the HTTP POST request is sent.	Not determined

No.	Restriction	Remarks	Date of removal
	<p>4. An HTTP POST request is sent to the web application in 1., and</p> <p>5. There was transition from the FORM authentication window to the intended content</p>		
3	<p>A file with the following name cannot be included in the application.</p> <p>".com_sun_appservlet_timestamp"</p> <p>This file is used by the IJServer cluster for control.</p> <p>If a file with the above name exists in the application, the application will not function properly.</p>	Do not include files with this name in the application.	Not determined
4	The lifecycle module cannot lookup the JavaMail session.	Use the JavaMail API, not the JavaMail session, to use JavaMail in the lifecycle module.	Not determined
5	When JDBC resources for which "Only join connection after the transaction has started" is enabled are used, and a connection that was opened outside the JTA transaction range is closed inside the JTA transaction range, the RAR5031 error occurs.	Close the connection outside the JTA transaction range.	Not determined
6	On the default error page, multi byte characters that are contained in the message cannot be displayed correctly.	For details on the message, refer to the server log.	Not determined
7	If the response character code returned to the client in the web application is not standardized, the characters may appear as garbled.	Standardize the character code.	Not determined
8	Web applications in which context-root starts with // cannot be executed.	Undeploy the web application in which context-root starts with //, modify context-root, then redeploy the web application.	Not determined
9	In Windows environments, the HTTP listener uses large numbers of ports.	<p>Enable [Block]. For details on the settings, refer to:</p> <ul style="list-style-type: none"> - Interstage Java EE Admin Console Help - "Definition Items of the configs.config.http-service" in the "Java EE Operation Commands" chapter 	Not determined
10	<p>The server instance will hang when it starts up if the value below is set for a Java VM option:</p> <p>-Djava.security.debug=access,failure</p>	<p>None.</p> <p>Do not set this value.</p>	Not determined
11	To connect to a database using a JDBC Connection Pool/JDBC resource, authentication using a user ID and password will be necessary, therefore it will not be possible to connect to SQL Server using Windows authentication.	Use SQL Server authentication.	Not determined
12	<p>When the following condition is satisfied, applications that should have the status "Disabled" are "Enabled" instead.</p> <p>Applications for which a non-existent class name was specified in <listener-class> of the deployment descriptor are deployed.</p>	Specify an existing class name in <listener-class>.	Not determined

1.2.2 Applications in the IPv6 Environment

The Interstage Java EE function does not support applications in the IPv6 environment.

Do not set a port number bound to an IPv6 address as the port number used by the Interstage Java EE function.

1.2.3 Security Functions

No.	Restriction	Remarks	Date of removal
1	In the Interstage Java EE function, SSL communication is not supported in communication between the client and the EJB container, and the client and the CORBA server.	To use communication encryption, position a web server in the DMZ so that encryption is executed in front of the DMZ.	Not determined
2	SSL communication is not supported in direct access to the web container from clients such as the web browser.	To use SSL communication from a client such as the web browser, perform operations by passing through a web server or SSL accelerator.	Not determined

1.2.4 Restrictions on Commands

Table 1.8 Restrictions on Commands

No.	Restriction	Remarks	Date of removal
1	The output format of the message displayed in the Console when the command is executed might be different to the content described in "Java EE Messages".	Take action according to the message output.	Not determined
2	Even if the asadmin command login subcommand is not executed, the ".asadminpass" file might be generated by executing another subcommand of the asadmin command or ijsmartsetup command. As long as the asadmin command login subcommand is not executed, login information will not be saved in the corresponding file. For details on the ".asadminpass" file, refer to "login Subcommand" in the "Java EE Operation Commands" chapter.	None. If the asadmin command login subcommand is not used, there is no problem if the ".asadminpass" file generated is deleted.	Not determined
3	When the command that creates the various asadmin command resources is executed and a server instance is specified wrongly in the --target option, the attempt to create the resource will fail. However, the resource may be registered wrongly while the target is in the unspecified state.	To recover resources that were registered wrongly, restart the Interstage Java EE DAS service.	Not determined
4	If the --contextroot option has been omitted from the asadmin command deploydir subcommand, a directory containing "." is specified and the application is then deployed, the context root of the application after deployment will be an invalid string.	Either change the context root after deployment or specify the --contextroot option, and then redeploy the application.	Not determined
5	The values for the definition items that are set in the asadmin command cannot contain multibyte characters.	None.	Not determined
6	The following values that are set in the ijsmartsetup command cannot contain multibyte characters: - Database server name or IP address	None.	Not determined

No.	Restriction	Remarks	Date of removal
	<ul style="list-style-type: none"> - RDB system name - Data resource name (database name) - Service name - User name that is used for database connection - User password that is used for database connection 		

1.2.5 Restrictions on Interstage Java EE Admin Console

Table 1.9 Restrictions on Interstage Java EE Admin Console

No.	Restriction	Remarks	Date of removal
1	If a session timeout occurs while the Interstage Java EE Admin Console window is being displayed, or after the Interstage Java EE DAS service is restarted, then the characters in the title of the Help window might be garbled when this Help window is displayed.	When the Help window is displayed again, the title displays normally.	Not determined
2	<p>If a mandatory input item is omitted, then the color of the item's label will be changed to red and an error will be output when the button is clicked, but the displayed icon tooltip contains an unwanted explanation (HTML item name).</p> <p>Example: When the New/Delete button in the New Cluster window is clicked.</p> <p>propertyForm:propertyContentPage:propertySheet: propertSectionTextField:NameTextProp:NameText Validation Error: Value is required.</p>	None.	Not determined
3	Even when JavaVM debug for the IJServer cluster is enabled, the debug displayed in the Server Instance General Information window is not enabled.	Refer to the debug settings information in "Java VM Definition Items" in the Java EE Admin Console Help.	Not determined
4	If a resource target was added or the asadmin command list-instances subcommand was used, then the Interstage Java EE DAS service status changes to "required restart". Also, if the resource target is added after the server instance starts, all server instances will have "required restart" regardless of whether the status for the target that was added is "enable" or "disable".	None. Although there is illegal status, however, there will be no problems at the operational level.	Not determined
5	When an IJServer cluster for which a connector module has been deployed is deleted, the resource adapter definition information will remain. If you try to deploy a connector module which application name has already been used elsewhere, then the "OM2321" error message will be output. (*1)	Delete the resource adapter definition information from the command using the asadmin command delete-resource-adapter-config subcommand. (*2)	Not determined
6	If Interstage Java EE Node Agent service - Logger Definition Items - "Log output directory" is changed from the default value, it will no longer be possible to download Interstage Java EE Node Agent service server logs from the Interstage Java EE Admin Console.	None.	Not determined

No.	Restriction	Remarks	Date of removal
7	In the "Deploy Enterprise Applications/Modules" window, if a directory containing "." was specified in "Local packaged file or directory that is accessible from Application Server", invalid initial values will be displayed for "Application Name" and "Context Root".	Correct the values for "Application Name" and "Context Root", and then click OK .	Not determined
8	The values for the definition items that are set at the Interstage Java EE Admin Console cannot contain multibyte characters.	None.	Not determined

*1 For details, refer to "OM2321" in the "Java EE Messages" chapter.

*2 For details, refer to "asadmin", "delete-resource-adapter-config Subcommand" in the "Java EE Operation Commands" chapter.

1.3 Notes on Interstage Operation

This section contains notes on using Interstage Java EE.

1.3.1 Differences with GlassFish

To maximize application portability, Interstage Java EE has been based on the open source software, GlassFish v2.1.

Support of the Java EE 5 API Specification

There are no differences between Interstage Java EE and GlassFish regarding the scope of support of the Java EE 5 API specification. Applications created based on the Java EE 5 specification can run on Interstage Java EE without changing the source code.

Support Outside the Java EE 5 Specification

Various functions that improve reliability (such as monitoring the maximum application processing time) have been added in Interstage Java EE. In addition, the following functions provided in GlassFish are not supported:

- Setup in standalone mode
Setup that supports clustering is always performed.
- Domain creation
Only one domain is set up as an Interstage Java EE DAS service during installation, so use that environment.
- Node Agent creation
Only one is set up during installation. This cannot be managed as one cluster (or the equivalent of the Interstage Java EE IJServer cluster) between multiple servers.
To run multiple servers, you should investigate using IPCOM or a cluster service (such as PRIMECLUSTER).
- JBI
- Custom MBean
- HTTP load balancer
- JACC provider
- Audit module
- Availability Service
- Administrator rules
- Diagnostic Service
- Other features that are not described in the manuals that explain the Interstage Java EE features

Using the Java EE 5 Extension API

In GlassFish, various com.sun.appserv package APIs that extend Java EE 5 are provided. These are not supported, however, except for some functions such as the lifecycle module.

For details on the range that can be used, refer to "Creating the Application" in the "Java EE Application Development" chapter.

Deployment Descriptor File for Extension

There are function differences in the items that can be defined in the deployment descriptor file used for extension, such as the sun-web.xml file and the sun-ejb-jar.xml file. For details on what is supported, refer to "Interstage Deployment Descriptor" in the "Java EE Application Development" chapter.

Commands/Definition Items

As mentioned above, there will be function differences, so for details on what is supported, refer to the "Java EE Operation Commands" and "List of Definition Items" chapters.

1.3.1.1 Differences in Deployment

Function	Differences and action to take
Targets	In GlassFish, any of the domain name/cluster name/instance name can be used to narrow down the target, but in this product only the IJServer cluster name can be specified. In this product, deployment is performed in the view after the IJServer cluster was selected, therefore there is no view for specifying the target.
Java Web Start	This might change in the future, as it is not in the scope of what is supported in the Java EE 5 specification, and therefore not supported.
Availability	The container is not supported, therefore the definition view is also not supported.

1.3.2 Notes About Using Windows Server® 2003

If a web application is run in Windows Server® 2003, depending on the environment a nonpaged pool area leak may occur in the IJServer cluster process.

Before taking evasive action, refer to "Nonpaged Pool Leaks in Windows Server® 2003" in the "Troubleshooting" chapter.

1.3.3 Notes on Interstage Java EE Admin Console Operation

When operating the Interstage Java EE Admin Console, note the points described in the sections below.

Actions Provided in the Web Browser

Do not use the following web browser functions, otherwise an Interstage Java EE Admin Console window may not display, or other errors may occur.

- Back
- Forward
- Stop
- Refresh
- Move

Using the Web Browser Cookies

Configure the settings in the web browser so that cookies are enabled.

Using the Tabbed Browsing Function

Do not run multiple Interstage Java EE Admin Consoles from multiple tabs within a web browser window using the tabbed browsing function. If you do, then an error may occur in the Interstage Java EE Admin Console window transition and operation.

To run multiple Interstage Java EE Admin Consoles, start multiple web browser windows for which the sessions are different, before operating the Interstage Java EE Admin Console.

Warning Notification when SSL Encrypted Communication is Used

When this product is installed, a certificate is generated for use by the Interstage Java EE Admin Console. This certificate has not been issued by a trusted CA, therefore a dialog box or warning page may be displayed to show that there is a problem with the certificate when the Interstage Java EE Admin Console is accessed.

When this certificate is used continuously, check its validity using the method shown below before using the Interstage Java EE Admin Console. Additionally, do not register this certificate in the web browser.

How to check a certificate fingerprint

Compare the fingerprint that was checked when this product was installed and the dialog box information that is displayed in the web browser.

Note that the fingerprint is a hash value that is calculated from part of the certificate. This value will vary, depending on the algorithm that is used for the calculation. Compare the fingerprints that were calculated using the same algorithm.

If you forgot to check the fingerprint at the time of the installation, refer to the relevant Installation Guide before checking the fingerprint. Refer to "Checking the Certificate Fingerprint for Interstage Java EE Admin Console SSL Encrypted Communication" in the "Installation (Server Package)" chapter.

The certificate that is generated when this product is installed is not a trusted certificate that is issued by a CA, therefore the certificate will be a low trust certificate for the following reasons:

- The reliability of the CA for the private keys used in certificate signatures cannot be guaranteed.
- The reliability of the certificate owner cannot be guaranteed.

To enhance security, switch to operations that use a certificate that was obtained from a CA. For details on how to switch operations, refer to "SSL" in the "Java EE Function Security" chapter.

If Communication is Encrypted Using SSL

If communication is encrypted using SSL, then the 'crypt32' error may be output to the event log.

This problem occurs when the root certificate renewal component is enabled and the connection to Windows® Update over the internet fails.

To avoid this trouble, follow the procedure below:

- Connect to the Internet, then renew the root certificate.
- Disable the root certificate renewal component.

Session Timeouts

If a session timeout has occurred, a confirmation dialog box will be displayed that notifies you that the web browser will close.

Take the following actions:

1. Click the [OK] button in the confirmation dialog box to close the web browser that was running the Interstage Java EE Admin Console.
2. To continue Interstage Java EE Admin Console operations, restart the Interstage Java EE Admin Console, then log in from the login window.

Specifying the Session Timeout

If a value is set for session timeout that is too large, it will increase the risk of a security breach by a third party, such as an illegal operation or an information leak. For the session timeout, set the minimum value that is required for Interstage Java EE Admin Console operations.

For information about setting the session timeout, refer to "Interstage Java EE Admin Console Tuning", "Session Timeout" in the "Java EE Function Tuning" chapter.

The Setting for Reuse of the Window for Launching Shortcuts

If the setting for "reuse windows for launching shortcuts" is disabled, an error may occur in the Interstage Java EE Admin Console window transition and operation.

Use the following procedure to enable the "reuse windows for launching shortcuts" setting:

In Internet Explorer, click the [Tools] menu. Select [Internet Options]. Click the [Advanced] tab. Select the [Reuse windows for launching shortcuts (when tabbed browsing is off)] check box.

The Display when the Zoom Function is Used

The window display may be corrupted when the zoom function is used. If this happens, use the standard 100% zoom.

Downloading Files or Logs

When files or logs are downloaded, this Security Alert message may be displayed:

"Your current security settings do not allow this file to be downloaded."

If this message is displayed, change the Internet Explorer security options as follows:

When Internet Explorer 9/10 is used

1. With the Interstage Java EE Admin Console displayed, click the Tools menu, Select [Internet Options]. Click the [Security] tab.
Do not change the zone that is selected.
2. Click [Custom level...].
3. In the [Downloads] section, change [File download] from "Disable" to "Enable".

When Internet Explorer 7/8 are used

1. With the Interstage Java EE Admin Console displayed, click the [Tools] menu, Select [Internet Options]. Click the [Security] tab.
Do not change the zone that is selected.
2. Click [Custom level...].
3. In the [Downloads] section, change [File download] and [Automatic prompting for file downloads] from "Disable" to "Enable".



.....
This security setting should not be changed if the zone which changes a security setting contains a non-trusted site.
.....

"xxx might have been moved or deleted."

If this message is displayed when downloading files in Internet Explorer 9 after clicking the [Open] button:

1. Click the [Save] button when downloading files or logs, to save the file.
2. Open the file that was saved.

File Names when Files or Logs are Downloaded

When using SSL encrypted communication to download files or logs in Internet Explorer 9, the downloaded files may have different names to the original files.

If this problem occurs, use the following procedure to change the configuration of the web browser to avoid this problem.

1. In Internet Explorer, click the [Tools] menu. Select [Internet Options]. Click the [Advanced] tab.

2. In the [Security] section, unselect the [Do not save encrypted pages to disk] check box.

Operating Multiple Interstage Java EE Admin Consoles

When Internet Explorer 8/9/10 are used, the Interstage Java EE Admin Console cannot be operated from multiple web browser windows. If you do, then an error may occur in the Interstage Java EE Admin Console window transition and operation.

To operate multiple Interstage Java EE Admin Consoles from one machine, use the following procedure:

- Click the [File] menu of Internet Explorer, then click [New Session] to start a new web browser.
- Operate the Interstage Java EE Admin Console using Internet Explorer 7.

Discarding of Input Values in Windows

When windows are switched by clicking the [Switch to Console] button for example, any input values that have not been saved will be discarded.

Window Display in Integrated GUI Operations

When the [Switch to Console] button in the Interstage Management Console is clicked and a switch is made to the Interstage Java EE Admin Console, the window that immediately follows the login will be displayed.

1.3.4 Notes About Deployment

The following notes are provided below.

- [Notes About Verification](#)
- [Notes About HotDeploy](#)
- [Notes About Switching a Deployed Module](#)
- [Notes About Deploying Web Applications](#)
- [Notes About Deployment Errors](#)
- [Notes About Redeployment](#)
- [Notes About Redeploying a Resource Adapter](#)
- [Notes About Web Service Deployment](#)
- [Notes on the String Specified for the Library \(the --libraries option\)](#)
- [Notes on Application File Names](#)
- [Notes on Using the Auto-reload Feature](#)
- [Notes on Executing Multiple Operations](#)

Notes About Verification

Contents of the Deployment Descriptor

The single-byte space before and after a value and all ASCII control characters defined in the deployment descriptor are interpreted as setting values.

If an error related to these characters occurs, take one of the following actions.

- Operating in an IIServer cluster server is possible if verification is disabled before deployment.
- Remove these characters.

JPA Verification

JPA verification is performed according to the Interstage persistence provider specifications, regardless of the persistence provider that is used.

If an error occurs when using non-Interstage persistence provider verification, check for problems in the application, and then disable verification before deployment.

For details on JPA, refer to "[2.11 Functionality Provided in JPA](#)".

JSP Precompile

If verification is enabled and JSP precompile is disabled, the setting `ignoreJspFragmentErrors` defined in the Interstage web application deployment descriptor is ignored.

If a JSP error occurs when a file is included statically from JSP, take one of the following actions.

- Fix the cause of the JSP error.
- If there is no problem in the application, disable verification before deployment.

For details on `ignoreJspFragmentErrors`, refer to "Tag and Description of the Interstage deployment descriptor" in the "Java EE Application Development" chapter.

Notes About HotDeploy

HotDeploy should be used when request volumes are low, such as at night. Use of this function is not recommended during normal business processing times as the following errors may occur.

- If HotDeploy is executed while a request is being processed in the web application, the following message may be output to the server log and `java.lang.ThreadDeath` will be thrown.

PWC1635

- If HotDeploy is executed while a request is being processed in the web application, the following message may be output to the server log.

PWC3989

- If HotDeploy is executed while a request is being processed in the EJB application, the following message may be output to the server log.

EJB6145

If the following errors occur when an application with no implementation problems is deployed, an inconsistency may have occurred in the IJServer cluster, therefore restart the IJServer cluster.

- `java.lang.ClassNotFoundException`
- `javax.naming.NameAlreadyBoundException`
- `javax.naming.InvalidNameException`

Notes About Switching a Deployed Module

Modules that have already been deployed cannot be enabled, even if they are replaced using file copy, for example.

Only the class files can be enabled, by restarting the IJServer cluster after the modules are replaced.

To replace a deployment descriptor, use redeployment or the auto-reload feature.

Notes About Deploying Web Applications

One context root cannot be used to deploy more than one web application - DEP4122 is displayed if this is attempted.

Therefore if the following conditions apply, deployment will fail:

- The IJServer cluster and the web server run on the same machine, and
- The same web server is used on both, and
- One of the IJServer clusters does not use a virtual host, or the IJServer clusters use the same virtual host.

The above conditions apply to both the J2EE and Java EE runtime environments.

For details on DEP4122, refer to the "Messages Beginning with 'DEP'" chapter of the Messages manual. Additionally, "ROOT" cannot be used in the context root.

If "ROOT" is specified in the context root, all of the requests that reach the web server that is linked with the IJServer cluster are dispatched to the IJServer cluster.

Notes About Deployment Errors

If a Fatal Error Occurs

If a fatal error, such as a hardware error, process stop, or insufficient resources, occurs during deployment, temporary files may be left behind in the following directory.

Windows32/64

[Java EE common directory]\work

Solaris32/64 **Linux32/64**

[Java EE common directory]/work

If these files exist, delete them if necessary following the procedure below.

1. Stop the Interstage Java EE DAS service.
2. Delete the files that exist in the above directory.

Note: Do not delete the work directory.

3. Start the Interstage Java EE DAS service.

Residual Application Resources

If an application is deployed while the IJServer cluster is being deleted or the Interstage Java EE DAS service is stopped during deployment processing, then the directory for the application name that is not displayed when "applications" is specified in the asadmin command list-sub-components and list subcommands may remain under the directory below:

Windows32/64

[Java EE common directory]\domains\interstage\applications

Solaris32/64 **Linux32/64**

[Java EE common directory]/domains/interstage/applications

Remaining application resources are deleted by deleting the IJServer cluster or deploying an application with the same name, therefore perform processing where necessary.

If "Directory Deployment is not Supported for non-DAS target." is Output at the Same Time as APPDEP1016

Web application deployment by means of directory specification is not supported.

Notes About Redeployment

When the web application is redeployed, the value specified in the -enabled option of the deploy subcommand is ignored.

If you want to change the application status, use the enable or disable subcommands after the redeployment is complete.

Notes About Redeploying a Resource Adapter

If redeployment of a resource adapter fails, then the adapter is undeployed, but the connector connection pool, connector resources, and managed object resources related to the resource adapter and the resource adapter definition information are not deleted. After the cause of the error is removed, the related resources, and so on, can be used when the resource adapter is deployed again. If you do not want to use the related resources, and so on, delete them individually.

Notes About Web Service Deployment

If an error occurs while the web service application is being deployed or undeployed, the application name may remain in the system file.

If the system file exists in the locations shown below, open the system files shown below using a text editor before running the web service. If the name of the application name in which the error occurred while the web service application was being deployed or undeployed has remained, delete the line on which the application name is registered. Take care when deleting this line. After these system files have been corrected, restart the Interstage Java EE DAS service.

Windows32/64

[Java EE common directory]\domains\interstage\generated\.com_sun_appserv_wsindex

Solaris32/64 Linux32/64

[Java EE common directory]/domains/interstage/generated/.com_sun_appserv_wsindex

Notes on the String Specified for the Library (the --libraries option)

Do not specify space or tab characters at the end of the character string.

Notes on Application File Names

Specify only alphanumeric or special characters ('-', '_', '.', ';') in the application name (--name option).

Note: The first character must be alphanumeric or an underscore, '_'.

Notes on Using the Auto-reload Feature

Use the auto-reload feature during application development if the deployment module class files are changed frequently. This will help improve development efficiency.

However, the auto-reload feature can only be used when the application is being developed, for the following reasons:

- The container will monitor changes made to the .reload file constantly, therefore processing performance will deteriorate.
- The session information kept by the application immediately before the reload will be discarded.
- Applications that are in the process of being replaced cannot receive requests.

Notes on Executing Multiple Operations

Multiple deploy/undeploy operations cannot be executed at the same time. If a new deploy/undeploy operation is input before the deploy/undeploy operation returns, the operation which was input after will stand by until the completion of the operation which was active before it.

1.3.5 Notes About Web Applications

The following notes are provided below.

- [Notes About Sessions](#)
- [Character Codes](#)
- [Cookies](#)
- [Cross-site Scripting Vulnerability](#)
- [Errors and Exceptions](#)
- [Error Page Status Codes](#)
- [Switching JSP](#)
- [Mutual Calling of Web Applications](#)
- [Specifying a Directory in the Request URL](#)
- [ServletContext and ServletRequest Attributes](#)
- [Undeploying Applications](#)

Notes About Sessions

Session IDs

The range of uniqueness and number of digits of the session ID depends on the web container implementation.

For this reason, only use the session ID in web container services.

For example, if the session ID has been registered in the database, the number of columns may be insufficient when the version of this product is upgraded.

Session Management Cookies

Session management using cookies is performed by the web container automatically.

Do not perform actions such as the adding of session management cookies in the application.

This may cause problems with session continuation or security.

When SSL Accelerator is Used

When the web server runs in an SSL environment, the "Secure" attribute is added automatically to the Cookie that is used for session management.

When the web server runs without using SSL (HTTP), and an SSL Accelerator is used, the "Secure" attribute is not added automatically. For details on how to add the "Secure attribute", refer to the Interstage Java EE Admin Console IJServer cluster Help.

Character Codes

Character Codes Identified by the Web Browser

The web browser identifies character codes in the following order of priority.

1. Character codes specified in charset of the ContentType header
2. In HTML, character codes specified in the <meta> tag

The character code specified is usually the one the web browser uses to display its contents. It is also used by the web browser in requests to the server.

In Servlet/JSP, set the ContentType header. In the HTML file, set the <meta> tag.

For details, refer to the HTML and Servlet/JSP specifications.

Character Codes Used to Read Requests from the Web Browser

The following methods are used to process requests from the web browser using the correct character code.

Specifying with a Servlet API

Specify the character code with the following Servlet API.

- `javax.servlet.ServletRequest.setCharacterEncoding`

For details, refer to the Servlet specifications.



Example

```
request.setCharacterEncoding("SJIS");
```



Note

This must be done before the request parameter is read or before `getReader` is called.

Specifying with the sun-web.xml

Specify the character code using the sun-web.xml <parameter-encoding> tag.

For details on how to define the character code, refer to "Interstage Web Application deployment descriptor (sun-web.xml)" in "deployment descriptor" in the "Java EE Application Development" chapter.



Example

```
<parameter-encoding default-charset="SJIS"/>
```



Note

If `javax.servlet.ServletRequest.setCharacterEncoding` is specified, the value specified in `setCharacterEncoding` will have first priority.

JSP Character Code

In JSP, the following character codes must be set correctly.

- The JSP file character code
- The character code that is returned to the browser

For details, refer to the JSP specifications.

When a Non-Web Container Service is Used

When a non-web container service is used in the web application, convert the I/O data code if necessary.

For details, refer to the manual of the service that is used.

Other

For details, refer to "Action for Garbled Characters in the Java EE Application" in the "Troubleshooting" chapter.

Cookies

Specifying the Port Number

Some web browsers cannot identify the server accurately regardless of whether 80 (443 in SSL communication) is specified for the port number or not, and the Cookie header is not sent.

Therefore, to maintain control in the application using Cookies, it is recommended that you create the HTML/application so that it uses a consistent method to call from the web browser, that is, either specifying the port number or not.

Cross-site Scripting Vulnerability

For details, refer to "About the Cross-Site Scripting Problem" in "Common Notes for Interstage" of the Product Notes.

Errors and Exceptions

When an error or exception that has occurred in an application is returned to the web browser, it may lead to the loss of internal information, it is therefore recommended that if applications are created steps are taken to manage errors and exceptions to prevent such loss.

If an error or exception is not processed (no catch) in the servlet or JSP, or if the error page is not specified in the applications definition file or JSP, the web container error page is displayed and no error stack trace is created for the error or exception.

Error Page Status Codes

When the error page specified in `web.xml` or the default error page is displayed, the Status Code returned will relate to the cause of the error (if the case of an exception, the Status Code is 500).

If you want to return another Status Code (for example, 200), the Status Code must be defined using the error page or Filter.

Web Browser Settings

If the intended error page does not display and the page provided by the web browser is displayed instead, check the web browser settings.



Example

Example: Microsoft® Internet Explorer 8

This occurs when [Tools] > [Internet Options] > [Advanced] > [Show friendly HTTP error messages] is selected (this is the default).

Switching JSP

Copying the JSP Compile Result

By copying the compiled result from the development environment to the live environment, it is possible to deter a JSP compile in the live environment, however if the time stamp on the development JSP predates that of the live JSP files or files included statically from the JSP, the JSP compile will run.

Therefore, it is recommended that you place JSP files and the JSP compiled result with the same time stamp in both the development and live environments.

Returning JSP to the Status before a Correction

The JSP is compiled when its time stamp or that of the files included statically from the JSP, post-dates that of the JSP compile result.

Accordingly, to return the status of the JSP or the files included statically from the JSP to the status before a correction is made, update the current time of the machine.

Mutual Calling of Web Applications

When dispatching to another web application using context sharing in an application that uses sessions, note the following.

- When the session is generated in the dispatch destination, it is generated in the dispatch source automatically if it does not already exist there.
- Even if the session is destroyed in the dispatch source, it is not automatically destroyed in the dispatch destination.

After the dispatch destination session has been destroyed, the dispatch source session must also be destroyed.

- If the session has been destroyed in the dispatch source, the session cannot be referenced by accessing the dispatch source, even if there is a session that has already been generated in the dispatch destination.

Specifying a Directory in the Request URL

When a directory has been specified in the request URL, and the settings have been configured so that the file list is displayed, a file with the name ".com_sun_appserv_timestamp" may be displayed directly under the context root.

Do not delete this file because it is used for control by the IJServer cluster.

This file has restricted access and cannot be accessed from the web browser. If it is, the HTTP error Status Code 404 (Not Found) will be returned.

ServletContext and ServletRequest Attributes

Attributes that start with the following prefixes are reserved.

Do not modify these values.

- java.
- javax.
- sun.
- com.sun.
- com.fujitsu.interstage.javaee.

Also, when the ServletContextAttributeListener or the ServletRequestAttributeListener is set, the listener method is called whenever the web container adds, updates, or deletes attributes that start with the above prefixes.

Undeploying Applications

The JSP compilation result created under the server instance is not deleted even when the application is undeployed - it is deleted when the operations below are performed:

- The application is redeployed.
- The server instance is restarted.
- The server instance is deleted.

1.3.6 Notes About EJB

Note the following when using EJB.

Effect of the Time Adjustment Functionality

If the time adjustment functionality is operated while an EJB application is running, it will affect the time monitoring that can be used in the EJB container.

Cache Recovery when the Entity Bean Application is Inactive

In the Entity Bean, cache recovery between transactions is not performed when the application is inactive. Instances in the pool are recovered, however.

EJB QL

Some features cannot be used because of the DBMS control. If these features are used, the exception message and the issued SQL statement for the DBMS specification will be output. Refer to the DBMS manual, then correct the application if necessary. Features that cannot be used because of the DBMS control are shown below.

If the DBMS that is used is Symfoware, note the following:

- Use of the functions shown below is controlled according to the Symfoware version. For details, refer to the Symfoware manual.
 - When the SQRT and MOD functions are used
 - When the third argument of the LOCATE function is specified and multiple input parameters are specified
 - When the LENGTH function input parameters are specified
 - When the SUBSTRING function is used
 - When multiple CONCAT function input parameters are specified
- The EJB QL <> operator is converted to the != operator when the SQL statement is issued, however this != operator cannot be used in Symfoware. In Symfoware, use the NOT logical expression.

Automatic Table Generation Feature

- If a table is created in Symfoware using the automatic table generation feature in a relation Entity Bean, this table will not contain an external key (control using the FOREIGN KEY constraint will not be performed).

1.3.7 Notes About JPA

Note the following when using JPA.

- The consistency of the relationship between EJB 2.0 and later CMP Entity Beans is managed automatically in the EJB container, however the consistency of the relationship between Java Persistence Entities is not managed automatically. For example, in a two-way relationship, if the relationship field of one is updated, the application of the other Entity relationship field must also be updated.
- Entity is not a Java EE component, therefore Dependency Injection cannot be used in it.
- When the Interstage persistence provider executes the SQL statement that was automatically generated internally, symbols such as double quotation marks that denote case sensitivity are not assigned to the identifier. For example, when "id" or "name" was specified as the column name, the following type of SQL statement will be executed:

```
select id, name from employee
```

In this case, the database specification will determine whether the identifier is handled using upper or lowercase.

For this reason, the following settings are recommended:

- When Oracle, Java DB, Symfoware, or SQL Server is used, it is recommended that the mapping target table and column names are unified as uppercase. (or the default settings are used)

When the Interstage persistence provider is used, also note the following.

- For details on supported databases, refer to "[1.1.3 Database](#)".
- The behavior cannot be guaranteed for Entity persistence fields that are not Java type fields that comply with the Java Persistence API conventions.
- According to the mapping policy for ensuring the continuity of relationships between entities, the SINGLE_TABLE or JOINED options can be used, however the TABLE_PER_CLASS option cannot be used.
- Some DBMS restrictions apply and the following functionalities cannot be used. If these are used, an exception message and the issued SQL statement is output according to the DBMS specifications. Refer to the DBMS manual and correct the application if necessary.
 - When Symfoware is used, note the following:
 - The SQRT functions and MOD functions cannot be used.
 - The third argument of the LOCATE function cannot be specified.
 - More than one input parameter cannot be specified in the LOCATE function.
 - The input parameter cannot be specified in the TRIM and LENGTH functions.
 - The input parameter cannot be specified in the first argument of the SUBSTRING function.
 - More than one input parameter cannot be specified in the CONCAT function.
 - The LockNoWait option of the Pessimistic Locking functionality cannot be used.
 - The relationship Entity can also use the automatic database table generation feature, however the database table that is generated will not contain an external key (control using the FOREIGN KEY constraint will not be performed).
 - When TableGenerator is used in the primary key value automatic generation feature and the table attribute is not specified, "SEQUENCE" is used by default. However, when "SEQUENCE" is specified explicitly for the table attribute, generation of the table for automatic generation of the primary key will fail because "SEQUENCE" is a reserved word in Symfoware. If a reserved word in Symfoware is specified for the table attribute, enclose this word in double quotes.

When SQL Server is used, note the following:

- TRIM function conversion characters cannot be specified. Spaces are used.
- The Pessimistic Locking functionality cannot be used.

1.3.8 Notes on the Connector Function

When using the connector function, note the points listed in the following sub-sections.

Calling the ManagedConnectionFactory setLogWriter() Method

ManagedConnectionFactory is instantiated upon connector activation, and each setLogWriter() method is called in the following order:

- The default connection pool allocated for the resource adapter (note that this pool is reserved by the system, and hence cannot be used).
- All Connector connection pools created by the user.

1.3.9 Notes About JMS

Note the following when using JMS.

Notes about Consumer Performance

If the value for the `consumerFlowLimit` property is increased, performance may deteriorate in consumer concurrency operations and in operations in which rollback processing occurs frequently.

Consider the system build before setting the value for the `consumerFlowLimit` property.

Notes about Transaction Operations

When the JMS client application performs a transaction operation, the message broker stores the transaction information in a file.

For the Java EE common directory, secure available disk capacity that is at least the value calculated according to the following formula:

- (Number of messages sent and received in 1 transaction x 500kB) x number of sessions that perform transaction operations

Notes about when the Receiving Application Returns Null

When the following methods are used in the receiving application, null may be returned regardless of whether there are messages that can be received:

- `receiveNoWait` method
- The `receive` method when the value for the `receive timeout` time was reduced

If this trouble occurs, take action by performing a retry of the above method.

Notes about Operations in which Large Numbers of Messages have Accumulated

In operations in which large numbers of messages have accumulated, sending application processing may be delayed.

Check whether either of the following messages that show insufficient memory is output to the message broker log:

- INFO: IJMQ_B1089: In low memory condition, Broker is attempting to free up resources
- INFO: IJMQ_B1088: Entering Memory State RED from previous state ORANGE - allocated memory is nnnnnnK, nn% of total memory used

If the above message is output, take action according to [User Action] for each message.

Notes on Using Session Class Methods

Do not use the `MessageConsumer` class `close()` method when using the following `Session` class methods:

- `recover()`
- `rollback()`

If it is necessary to execute the `MessageConsumer` `close()` method, then execute `Session.close()`.

Notes on Using the `imqcmd` Command list `dur` Subcommand

When the message broker is restarted, 0 might be displayed for Number of Message.

Check the number of messages that have accumulated using the `imqcmd` command list `dst` subcommand (for details, refer to "imqcmd" in the "Java EE Operation Commands" chapter).

Notes on Using Multiple Consumers

If messages have accumulated in the Queue type physical storage destination, then the number of messages set in `consumerFlowLimit` will be delivered to the consumer as one unit, until there are no messages left.

If `consumerFlowLimit` is too large, then some consumers might receive all messages in the Queue type physical storage destination, while other consumers might not receive any.

If you want messages to be evenly distributed to consumers, then set a low value for `consumerFlowLimit`.

For example, if 100 is set for `consumerFlowLimit` and 50 messages have accumulated in the physical storage destination, then the consumer that connects first (consumer A) will receive all 50 messages. A consumer that connects after that (consumer B) cannot receive any messages.

Also, if 10 is set for consumerFlowLimit and 100 messages have accumulated in the physical storage destination, then the messages will be distributed to consumer A and consumer B, so each consumer will be able to receive them.

The lower the value for consumerFlowLimit, the greater the overhead to deliver messages to the consumer, however.

Notes on Using the Application Client Container

When using the application client container in the client package, make sure that the client package product version, JMS Connection Factory, and the server package product version that the JMS send destination resources are registered in, are all identical.

1.3.10 Notes Related to Date/time

Note the following points about the date/time.

Changing the System Date/time

If the system time loss or gain is corrected, then an inconsistency might occur in the timestamp file that manages the time information, and the Interstage Java EE Node Agent service startup might fail or a problem might occur in the IJServer cluster at the time of the application (for example, the timeout function might malfunction).

For this reason, change the system date/time according to the following procedure:

1. Stop the following:
 - All IJServer clusters
 - All message brokers
 - All Java DBs
 - Interstage Java EE Node Agent services
 - Interstage Java EE DAS services
2. Manually delete the time stamp files below:

It is recommended to back up the IJServer cluster resources before deleting these files.

Back up the IJServer cluster resources according to "Backup Procedure".

Windows32/64

```
[Java EE common directory]\nodeagents\ijna\agent\config\*.timestamp  
[Java EE common directory]\nodeagents\ijna\[server instance name]\config\.com_sun_appserv_timestamp  
[Java EE common directory]\nodeagents\ijna\[server instance name]\generated\jsp\.com_sun_appserv_timestamp  
[Java EE common directory]\nodeagents\ijna\[server instance name]\generated\policy\.com_sun_appserv_timestamp
```

Solaris32/64 Linux32/64

```
[Java EE common directory]/nodeagents/ijna/agent/config/*.timestamp  
[Java EE common directory]/nodeagents/ijna/[server instance name]/config/.com_sun_appserv_timestamp  
[Java EE common directory]/nodeagents/ijna/[server instance name]/generated/jsp/.com_sun_appserv_timestamp  
[Java EE common directory]/nodeagents/ijna/[server instance name]/generated/policy/.com_sun_appserv_timestamp
```

3. Change the system date/time.
4. Start the following:
 - Interstage Java EE DAS services
 - Interstage Java EE Node Agent services
 - All Java DBs
 - All message brokers
 - All IJServer clusters

In addition to the method of deleting the files manually (shown above), the method of backing up and restoring the IIServer cluster resources can also be used. The procedure is shown below.

Back up and restore the IIServer cluster resources according to "Backup Procedure" and "Restore procedure".

When the IIServer cluster resources restore method is used, a comparison is made with the system date/time of the resource backup. If the system date/time of the environment in which the resource restoration is performed is earlier than the system date/time of the resource backup, then the timestamp file is deleted automatically.

1. Back up the IIServer cluster resources.
2. Change the system date/time.
3. Restore the IIServer cluster resources.

Log File Rotation

The log file is saved with the time at which the rotation was performed appended to the file name. If the number of generations of the log file stored exceeds the maximum specified, the oldest generation of the log file will be deleted.

If the system date/time is changed, there may be log files with an appended time that is in the future when compared to the current system time. If the log rotation is performed in this state, the log files with a future time may still remain, and the log files with the current time appended may not always be backed up.

To avoid situations where the log file rotation is not performed as intended, if the system date/time was changed, check the file name of the log files that are stored and then change the file name or delete the file if necessary.

For details on the log output destination or file name, refer to "Java EE Application Logs" in the Java EE Operator's Guide.

1.3.11 Notes on the Java EE Password

The guidelines for the Java EE password are listed below:

- Do not use personal names, proper nouns or user names (IDs).
- Do not use words listed in the dictionary.
- Include digits and symbols.
- Do not use repeated characters.
- The password should be between 8- and 20-characters long.
- Do not use a password used elsewhere.



Note that if non-recommended characters/number of characters are used, then authentication may not be performed correctly.

1.3.12 Notes on Application Security

Caution is advised if the admin-realm and admin user information is updated.

For details, refer to "Notes on Updating Admin-realm and Administrator User Information" in the "Java EE Function Security" chapter.

1.3.13 Notes on the Web Service/Web Service Client

The use of SOAP1.1 is regulated by the specifications for WSI-Basic Profile 1.1 and WSI-Basic Profile 1.0 (the standard for web services).

From the perspective of compatible connectivity, the use of SOAP1.2 is not recommended.

1.3.14 Notes on Repository Synchronization

This section describes notes about repository synchronization.

Resources Under the Server Instance

Resources under the server instance are copied through repository synchronization, and resources related to undeployed applications are deleted through repository synchronization.

For this reason, undeployed application resources might remain in the directories below until the next repository synchronization:

Windows32/64

- [Java EE common directory]\nodeagents\ijna\[server instance name]\generated\jsp\j2ee-apps\[application name]
- [Java EE common directory]\nodeagents\ijna\[server instance name]\generated\jsp\j2ee-modules\[application name]
- [Java EE common directory]\nodeagents\ijna\[server instance name]\generated\policy\[application name]

Solaris32/64 Linux32/64

- [Java EE common directory]/nodeagents/ijna/[server instance name]/generated/jsp/j2ee-apps/[application name]
- [Java EE common directory]/nodeagents/ijna/[server instance name]/generated/jsp/j2ee-modules/[application name]
- [Java EE common directory]/nodeagents/ijna/[server instance name]/generated/policy/[application name]

To immediately delete the resources of an undeployed application, manually delete the [application name] directory.

For details on repository synchronization, refer to "Repository Synchronization" in the "Functionality Provided in the Java EE Application" chapter.

Notes on when an Error Occurs During Repository Synchronization

If an error occurs during repository synchronization, then unnecessary resources might remain under the following directories:

Windows32/64

[Java EE common directory]\nodeagents\ijna\[server instance name]\generated\.com_sun_appserv_trash

Solaris32/64 Linux32/64

[Java EE common directory]/nodeagents/ijna/[server instance name]/generated/.com_sun_appserv_trash

The next repository synchronization will try to delete unnecessary resources, but they can be manually deleted as well.

1.3.15 Notes on Resource Access Privileges when the Service Operator User has been Changed

When the `ijsetoperatorid` command is used to change the service operator user, set suitable read permission in advance for the user specified as the service operator user, so that this user can refer to the files and paths other than the Java EE common directory specified in operations and definition items (for details on the command, refer to "ijsetoperatorid" in the "Java EE Operation Commands" chapter).

In addition, the service operator user must assign write permission in relation to the resources shown below.

Resources for which Write Permission must be Changed

- Logger definition item "Log output directory" (for details, refer to "Logger Definition Items" in the "List of Definition Items" chapter)
- Security definition item "Key file" (for details, refer to "Security Definition Items" in the "List of Definition Items" chapter)
- EJB container definition items "Session storage location" (for details, refer to "EJB Container Definition Items" in the "List of Definition Items" chapter)
- Transaction service definition item "Transaction log location" (for details, refer to "Transaction Service Definition Items" in the "List of Definition Items" chapter)
- Java DB system directory (for details, refer to "Java DB System Directory" in the "Java DB" appendix)

- JSP compilation results directory (property scratchdir) (for details, refer to "jsp-config (parent tag :sun-web-app)" in "Tag and Description of the Interstage Deployment Descriptor" in the "Java EE Application Development" chapter

1.3.16 Notes About Using Cluster Service Linkage

This section contains notes about the use of cluster service linkage.

About Operations at Standby Node

The Java EE common directory cannot be referenced from the standby node when it is deployed on a shared disk. Therefore, an error occurs when the standby node performs Java EE operations.

If the Java EE common directory is deployed on a shared disk, then perform Java EE operations from the active node or from the operations view of a cluster product.

Stopping Services Targeted for Failure Monitoring

If a service is set so that cluster switchover is performed when a failure occurs, do not execute a service stop operation command from a node in the online state, because the stop operation would be detected as a service failure and cause cluster switchover. Perform service stop operations from the PRIMECLUSTER operations view instead.

If an individual service must be stopped for maintenance or similar purposes, then change the cluster application to maintenance mode before performing the task. For details on how to use the maintenance mode, refer to the PRIMECLUSTER manual.

1.3.17 Notes on Log File Rotation

The various Interstage Java EE log files are managed by a product feature. For this reason, do not perform log rotation using another feature.

1.3.18 Notes on Using 'root' in Solaris

When 'root' is set as a role in Solaris, login authentication may fail when root is used in the Interstage Java EE Admin Console or the asadmin command. (In Solaris 11, root is set as a role by default.)

To log in using root in the Interstage Java EE Admin Console or the asadmin command, it will be necessary to change root from a role to a user account beforehand. For details on how to do this, refer to the following:

http://docs.oracle.com/cd/E23824_01/html/821-1456/rbactask-4.html#rbactask-20

Chapter 2 Functionality Provided in the Java EE Application

This chapter describes functionality provided in the Java EE application.

The runtime environment that supports Java EE provided in this product offers a package of the IJServer cluster and the operation command as the application operating environment which has the multiple process configurations, process monitoring and emergency recovery functionality.

Using the above functionality, the user can easily set up a high-availability application operating environment.

2.1 Overall Configurations

This section explains the environment required for running Interstage Java EE.

2.1.1 Interstage Java EE Operating Environment

In the Java EE runtime environment, the IJServer cluster operation command set and the Interstage Java EE Admin Console are provided for multiple process configurations and process monitoring, and as an application environment that has a recovery function following an abnormality.

If these are used, it is easy for the user to build a high-reliability application environment.

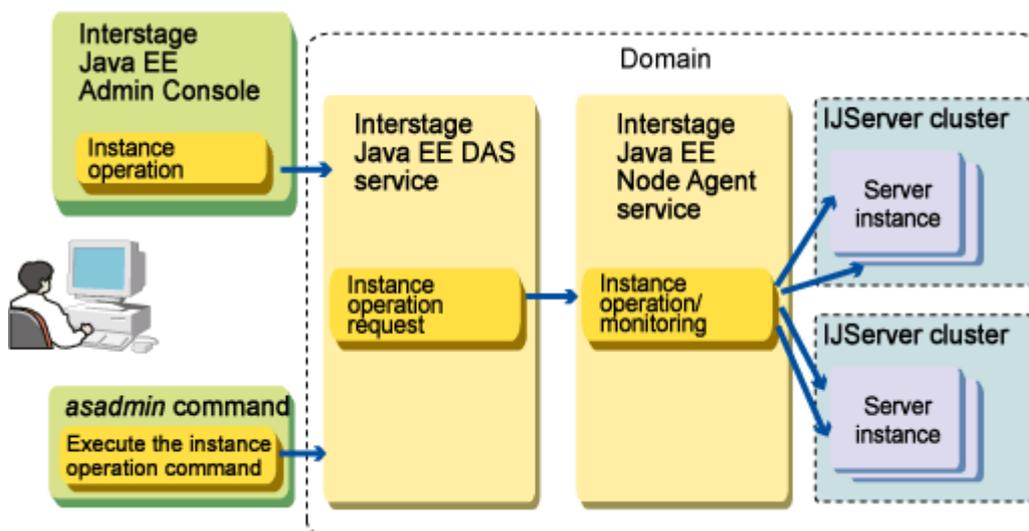
As shown in the illustration below, Java EE IJServer cluster operations can be performed using the `asadmin` command or the Interstage Java EE Admin Console. When an IJServer cluster operation is performed, the operation request to the Interstage Java EE Node Agent service is transmitted via the Interstage Java EE DAS service, and the server instance of the Java VM used to run the user application is started/stopped.

The Interstage Java EE Node Agent service monitors the server instance and takes appropriate action such as message output or recovery when an error occurs.

Operation of the IJServer cluster (Java EE) is performed via the Interstage Java EE DAS service and Interstage Java EE Node Agent service. Therefore, to perform the IJServer cluster (Java EE) operation, the Interstage Java EE DAS service and the Interstage Java EE Node Agent service must be started.

JMX/HTTP/RMI are used for communication between these services. For details on JMX/HTTP tuning, refer to the following in the "List of Definition Items" chapter:

- ["7.2 Interstage Java EE Node Agent Service Definition Items"](#)
- ["7.8.3 HTTP Service Definition Items"](#)
- ["7.8.5 Managed Service Definition Items"](#)



The table below explains each operation.

Name	Explanation
Interstage Java EE Admin Console	Accepts GUI operations.
asadmin command	Accepts CLI operations.
Interstage Java EE DAS service	This is the service that is used to operate and manage Interstage Java EE. It accepts operation requests from the Interstage Java EE Admin Console and the asadmin command.
Interstage Java EE Node Agent service	This is a service that manages server instances. It starts, stops, and monitors the server instance.
IJServer cluster	This is an operation unit of the server instance. Start, stop, definition change and application deployment are performed by each IJServer cluster. Stand-alone server instances can also be started/stopped.
Server instance	This is the Java VM that runs the application on the IJServer cluster.
Domain	This is the range for the providing of the Interstage Java EE DAS services/Interstage Java EE Node Agent services/server instances/IJServer clusters.

2.1.2 JRE/JDK Used by Java EE

JDK, which is selected during installation, is enabled in all Java EE services and components. If you want to change JDK (in the client, this is JRE) that is used by Java EE after the installation, initialize the Java EE environment (for details, refer to ["2.1.5 Initializing the Java EE Environment"](#)).

2.1.3 Java EE Common Directory

Interstage Java EE Node Agent service resources, IJServer cluster and Interstage Java EE DAS services are stored under the Java EE common directory.

The default Java EE common directory is as follows:

Windows32/64

C:\Interstage\F3FMisjee\var (when installed in C:\Interstage)

Solaris32/64 **Linux32/64**

/var/opt/FJSVisjee

The following directories are created under the Java EE common directory.

Windows32/64

domains\interstage	Files used by the Interstage Java EE DAS service are stored in this directory.
nodeagents\ijna\agent	Files used by the Interstage Java EE Node Agent service are stored in this directory.
nodeagents\ijna<server instance name>	Files used by the IJServer cluster are stored in this directory. (*1)
commands	Files used by the Java EE operation commands are stored in this directory.
databases	This is the Java DB system directory. (*2)

Solaris32/64 **Linux32/64**

/domains/interstage	Files used by the Interstage Java EE DAS service are stored in this directory.
nodeagents/ijna/agent	Files used by the Interstage Java EE Node Agent service are stored in this directory.

nodeagents/ijna/<server instance name>	Files used by the IJServer cluster are stored in this directory. (*1)
commands	Files used by the Java EE operation commands are stored in this directory.
databases	This is the JavaDB system directory. (*2)

*1)

For details on the file configuration used by the IJServer cluster, refer to "2.4.2 IJServer Cluster File Configuration".

*2)

For details on the Java DB system directory, refer to "A.3 Java DB System Directory".

During the installation, any directory can be specified in the Java EE common directory.

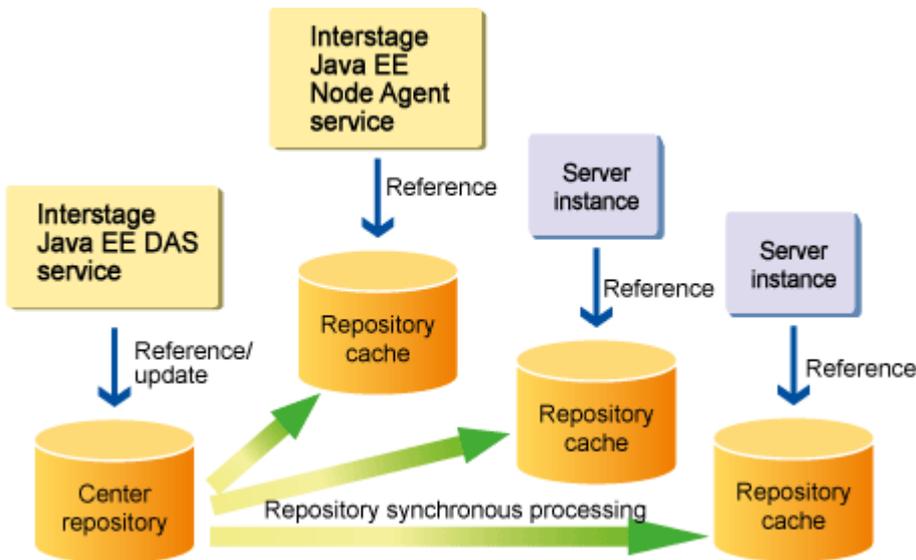
For details on how to change the Java EE common directory, refer to "2.1.5 Initializing the Java EE Environment".

2.1.4 Repository Synchronization

In the Java EE environment, the Interstage Java EE DAS service concentrically manages the resources required to execute the Interstage Java EE Node Agent service and the server instances.

Accordingly, the maintenance of Interstage Java EE Node Agent service and server instance data is eliminated as far as possible.

To realize the concentric management of resources, synchronous processing of the repository is performed in the Java EE environment.



The Interstage Java EE Node Agent service and server instances refer to the repository cache definition information and resources before running.

In repository synchronous processing, the definition information required to execute the Interstage Java EE Node Agent service and the server instances is copied to the repository cache of each service from the center repository.

The center repository and the repository cache are explained below:

Center repository

This is a space for storing domain resources and various data required for the execution of Interstage Java EE Node Agent services and server instances. The center repository is comprised of the following data:

- Definition information (such as domain.xml)
- Libraries used (.jar files) or classes (.class files) in the domain/server instance
- Deployed applications
- Files generated for the application (EJB stubs, precompiled JSP classes, security policy files)

Repository cache

This is used to store definition information, such as domain.xml, that was copied from the center repository and exists for each Interstage Java EE Node Agent service and server instance.

Synchronous processing of each repository cache runs using the extension of the following operations:

- Interstage Java EE Node Agent service
 - Starting the Interstage Java EE Node Agent service (*1)
- Server instance
 - Starting the IJServer cluster or server instances
 - Application HotDeploy

*1)

If the Interstage Java EE DAS service has not started, then repository synchronization will not be performed.

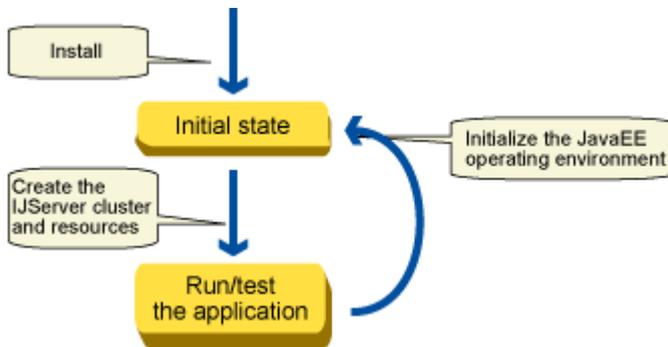
If the Interstage Java EE Node Agent service definition is changed, the IJServer cluster definition is changed or the application definition updated but the Interstage Java EE Node Agent service is not running, then the follow the procedure below:

- Start Interstage Java EE DAS service.
- Start Interstage Java EE Node Agent service.
- Update the repository cache.

2.1.5 Initializing the Java EE Environment

When the Java EE environment is initialized, the definition information and resources are initialized/deleted and the post-installation status can be restored.

Use initialization if you want to restore the environment used for application operations and testing to its initial state. For details on the initialization method, refer to "ijinit" in the "Java EE Operation Commands" chapter.



Resource State after Initialization

The table below describes the state of each resource after the initialization has been performed:

Resource	State after initialization	Remarks
IJServer cluster	All predefined IJServer clusters are deleted.	
Server instance	All predefined server instances are deleted.	
Application	All predeployed applications are deleted.	Applications used by the system are rebuilt.
Resource	All predefined resources are deleted.	Resources used by the system are rebuilt.
System property	All predefined system properties are deleted.	
Message broker	All prebuilt message brokers are deleted.	The user must stop all message brokers before performing the initialization.

Resource	State after initialization	Remarks
Web server connector	Web server connectors linked to IJServer clusters are deleted.	Only web server connectors linked to IJServer clusters are deleted. web server connectors linked to J2EE IJServers are not deleted.

Note

Even if the initialization operation has been performed, the Interstage Node Agent service JVM option does not revert to the default value. Change the value of the JVM option manually if required. For details on how to change this value, refer to "[6.2 Interstage Java EE Node Agent Service Tuning](#)".

Settings that can be Specified during Initialization

The settings listed in the sections below can be changed during initialization (note that they can also be specified during installation).

In the Server Package

Port numbers used by the Interstage Java EE DAS service

Item	Default value	Synopsis	Remarks
IIOp port	23600	IIOp(ORB) listener port number	(*1)
IIOp_SSL port	23601	IIOp/SSL listener port number	(*1)
IIOp_MUTUALAUTH port	23602	IIOp/SSL listener port number for mutual authentication	(*1)
JMX_ADMIN port	8686	JMX connector listener port number specified using the JMX Management Tool	(*1)
DOMAIN_ADMIN port	12001	HTTP listener port for operation management	(*1)
HTTP_LISTENER port	28080	HTTP listener port	(*1)

*1)

An error occurs if the port number is the same as that of another Java EE function when the command is executed.

Windows32/64

An error occurs if the port number cannot be used (bound) when the command is executed.

Java EE common directory

Item	Default value	Synopsis	Remarks
Java EE common directory	Windows32/64 C:\Interstage \F3FMisjee\var Solaris32/64 Linux32/64 /var/opt/FJSVisjee	Directory of Interstage Java EE Node Agent service, IJServer cluster, and Interstage Java EE DAS service resources	The previous files stored under the Java EE common directory are deleted during initialization. If the Java EE common directory is not changed, then the file resources are also all deleted. Back up the required resources before initialization.

Use of SSL encrypted communication

Item	Default value	Synopsis	Remarks
Use of SSL encrypted communication	true	Select the security operation mode that will be used for the Java EE operation management HTTP listener and the Interstage Management Console.	When set to "true", SSL encrypted communication will be used.

JDK used in the Java EE environment

Item	Default value	Synopsis	Remarks
JDK used by Java EE	JDK6	JDK used by Java EE. JDK6 can be specified. Java EE does not support JDK7.	An error occurs if JDK is specified but it has not been installed.

In the Client Package

JDK/JRE used in the Java EE environment

Item	Default value	Synopsis	Remarks
JDK/JRE used by Java EE	JDK6	JDK/JRE used by Java EE. JDK6/JRE6 can be specified. Java EE does not support JRE7/JDK7.	An error occurs if JDK/JRE is specified but it has not been installed.

2.1.6 User Name and Password Used in the Java EE Environment

This section explains the user name and password used in Java EE operating environment operations.

For details on the security function that can be used in Java EE applications, refer to "[5.2 Java EE Application Security Functionality](#)".

Interstage Java EE DAS Service Authentication

Before performing Interstage Java EE operations, authentication for the Interstage Java EE DAS service must be performed using the administrator user ID and administrator password.

For details on the administrator user ID and administrator password default settings during installation or when the Java EE environment is initialized, refer to "[5.1.5.1 Realm for Login Authentication](#)".

For details on the initialization of the Java EE environment, refer to "ijinit" in the "Java EE Operation Commands" chapter. For details on how to change the password using the command, refer to "[10.1.19.1 change-admin-password Subcommand](#)".

For details on how to specify the user name and password with the asadmin command is used, refer to "[5.1.6.2 Login Authentication for the asadmin Command](#)".

2.1.7 Customizing a Service Operator User Solaris32/64 Linux32/64

The Java VM processes below that run in the Java EE operating environment are run by the system administrator user by default:

- Interstage Java EE Node Agent service
- Interstage Java EE DAS service
- Server instances under IJServer clusters

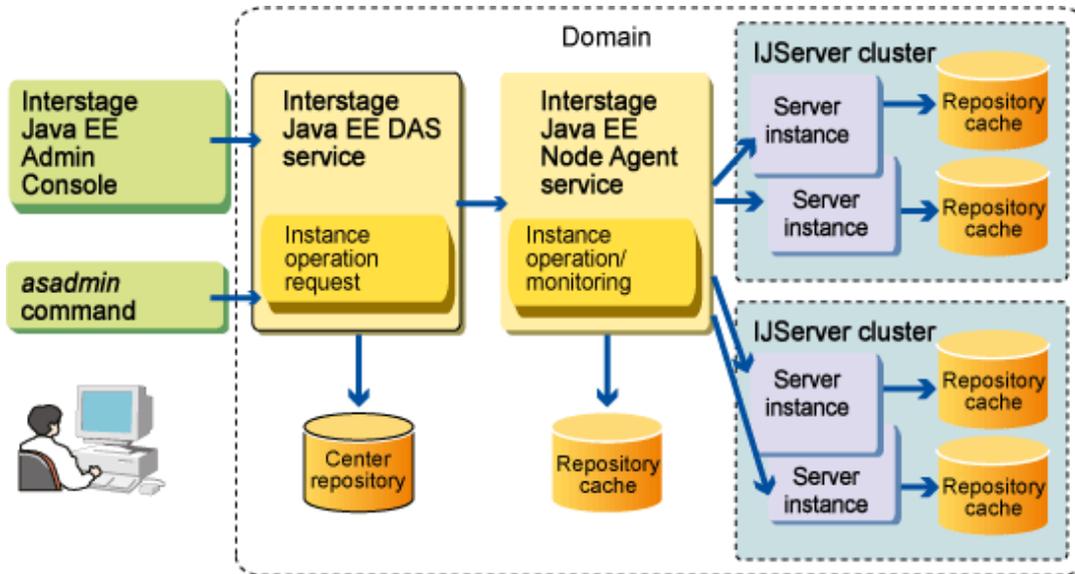
The user that runs these services can be specified. For details, refer to "[5.1.2 IJServer Cluster Process Execution Privileges](#)" and "ijsetoperatorid" in the "Java EE Operation Commands" chapter.

2.2 Interstage Java EE DAS Service

The Interstage Java EE DAS service is a service that manages Java EE environment operations and has the following roles:

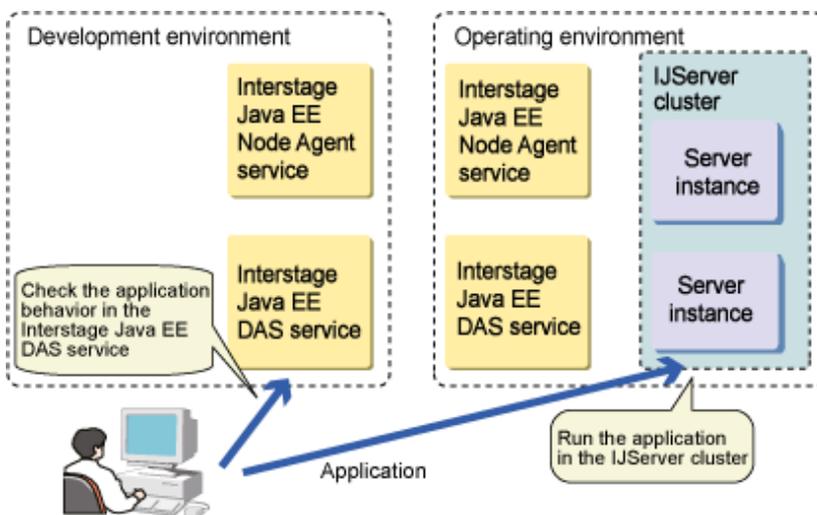
- Interstage Java EE Admin Console operations
- Accept asadmin command operations
- Interstage Java EE Admin Console/user authentication when the asadmin command is used
- Managing the center repository that stores Java EE environment resources

The location of the Interstage Java EE DAS service in the Java EE environment is as follows:



In development environments, applications and resources can be deployed to and run in the Interstage Java EE DAS service.

If the Interstage Java EE DAS service is used, applications can be checked without starting the Interstage Java EE Node Agent service or IJServer cluster.



For details on the location of the Interstage Java EE DAS service in the Java EE environment, refer to "[2.1.1 Interstage Java EE Operating Environment](#)".

2.2.1 Interstage Java EE DAS Service File Configuration

The files used by the Interstage Java EE DAS service are stored in the following directories:

Windows32/64

[Java EE common directory]\domains\interstage

[Java EE common directory]/domains/interstage

For details on the file configuration, refer to "[B.1 Interstage Java EE DAS Service File Configuration](#)" in the "File Configuration" appendix.

2.2.2 Interstage Java EE DAS Service Log Files

For details on log files, refer to "Java EE Application Logs" in the "Java EE Application Operation" chapter.

2.2.3 Interstage Java EE DAS Service Instance Names and Definition Information

The Interstage Java EE DAS service runs as a stand-alone instance that does not belong to any IJServer cluster.

It has instance names and definition information, the same as the server instances under the IJServer cluster.

The Interstage Java EE DAS service instance names and setting names are shown below.

Instance name	Setting name
Server	server-config

For example, to run the Interstage Java EE DAS service using the asadmin command, follow the procedure below.

- Specifying the instance name to deploy the application to the Interstage Java EE DAS service
 - > asadmin deploy --target server sample.ear
- Specifying the definition name to reference the Interstage Java EE DAS service definition information
 - > asadmin get server-config.*.*

The Interstage Java EE DAS service definition is the same as the IJServer cluster definition.

The items below cannot be used in the Interstage Java EE DAS service:

Category	Item
IJServer	IJServer name
	Environment Variables
	Control when there is insufficient Java Heap/Permanent generation space
	Maximum Application Processing Time
	IJServer startup wait time
	IJServer shutdown time
	Number of backed up current directory generations
Cluster	heartbeat port
	heartbeat address
	Heartbeat

2.2.4 Differences with the IJServer Cluster

Function differences between the Interstage Java EE DAS service and the IJServer cluster are shown below.

Function	Interstage Java EE DAS service	IJServer cluster
Running multiple processes	-	Yes
Automatic restart of Java VM processes	-	Yes
Partial running	-	Yes

Function	Interstage Java EE DAS service	IJServer cluster
Control when there is insufficient Java Heap/Permanent generation space	-	Yes
Monitoring the maximum application processing time	-	Yes
Alert monitoring	-	Yes
Current Directory Generation Management	-	Yes
Environment variable settings	(*1)	Yes
Application operations	(*2)	Yes
Creating resources	(*2)	Yes
Start log rotation	-	Yes
Java VM log	(*3)	Yes

*1) For details on how to set the environment variables in the Interstage Java EE DAS service, refer to "Interstage Java EE DAS Service Operations", "Environment Variable Settings" in the "Java EE Application Operation" chapter.

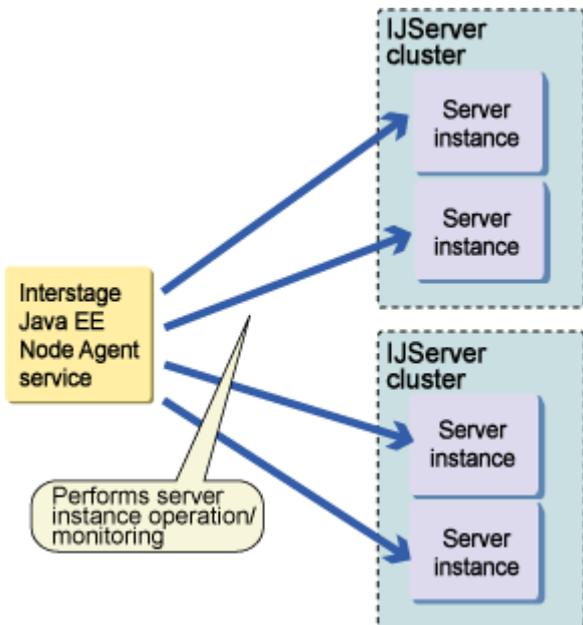
*2) This can be used in the development environment. It is not recommended for the operating environment. Also, for functions that can be used in both IJServer clusters and the Interstage Java EE DAS service, the examples in the manual may be explanations for IJServer clusters.

*3) jvm.log will also be created in the Interstage Java EE DAS service, but information required for investigation by a Systems Engineer will be output to this file. If you are required to obtain Java VM information (such as application thread dump and GC occurrence status), deploy the application to the IJServer cluster and obtain the information.

2.3 Interstage Java EE Node Agent Service

The Interstage Java EE Node Agent service is the resident process that starts, stops and monitors the server instance.

The Interstage Java EE Node Agent service is created in the machine, and Interstage Java EE Node Agent service and the IJServer cluster machine have a one-to-one relationship as shown in the figure below:



The server instance is for the Java VM process that is actually generated, and a Java VM process is generated for each server instance.

2.3.1 Interstage Java EE Node Agent Service File Configuration

Files are managed under the following directories:

Windows32/64

[Java EE common directory]\nodeagents\

Solaris32/64 Linux32/64

[Java EE common directory]/nodeagents/

For details on the file configuration, refer to "[B.2 Interstage Java EE Node Agent Service File Configuration](#)" in the "File Configuration" appendix.

2.3.2 Interstage Java EE Node Agent Service Log Files

For details on log files, refer to "Java EE Application Logs" in the "Java EE Application Operation" chapter.

2.4 IJServer Cluster

This product introduces the concept of Interstage Java Server ("IJServer cluster") which is the environment that is used to run the Java EE application for the purpose of operation enhancement.

The concept of IJServer cluster is a logical one, where it is placed above the EJB container and web container, which are containers that together form the Java EE application runtime environment.



The Java EE application runtime environment IJServer cluster is different from the J2EE application runtime environment

IJServer cluster provided in Interstage Application Server V9.0.x and earlier versions. The following terms are used to distinguish between the two where applicable.

- IJServer cluster: Java EE application runtime environment
- IJServer (J2EE): J2EE application runtime environment

This manual explains "IJServer cluster".

Refer to the J2EE User's Guide if you are using "IJServer (J2EE)".

2.4.1 IJServer Cluster Operating Environment

For details on the runtime environment configuration, refer to "[2.1.1 Interstage Java EE Operating Environment](#)".

This section explains the following:

- IJServer Cluster File Configuration
- Current Directory
- Log Directory
- Multiple Process Configurations

2.4.2 IJServer Cluster File Configuration

This section explains the following:

- [IJServer Cluster File Configuration](#)
- [Current Directory](#)
- [Log Output Directory](#)
- [JSP Compile Result Storage Directory](#)

IJServer Cluster File Configuration

IJServer cluster and the deployed application are managed under the following directories:

Windows32/64

[Java EE common directory]\ijsservers\

The default [Java EE common directory] is C:\Interstage\F3FMisjee\var

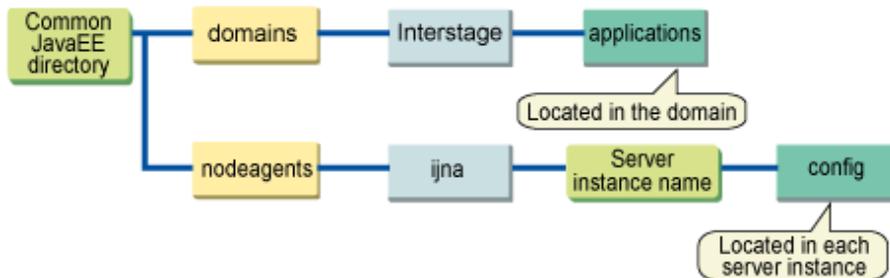
Solaris32/64 Linux32/64

[Java EE common directory]/ijsservers/

The default [Java EE common directory] is /var/opt/FJSVisjee

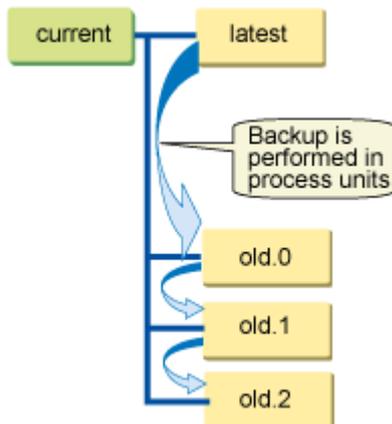
For details on the file configuration, refer to "B.3 IJServer Cluster File Configuration" in the "File Configuration" appendix.

The IJServer cluster settings information is deployed for each server instance. The application resources are deployed to one location in the domain.



Current Directory

The current directory of the server instance Java VM process is created according to the following configuration under "[Java EE common directory]/nodeagents/ijna/\${server instance name}".



When the IJServer cluster starts up, the current/latest directory under each server instance rotates, and the directory name "old.%sequence number from 0%" is added to the previous directory. The upper limit for the backed up generations can be set using [Number of backed up current directory generations] - the default value of this setting is 1.

If a Java VM process under an IJServer cluster restarts automatically while the IJServer cluster is running, only the current directory of the current/latest directory under the server instance that restarted automatically is rotated. The name of the previous current directory changes to "old.%sequence number from 0%", and the directory is backed up.

Log Output Directory

This is the directory that the IJServer cluster log is output to.

For details on the log output directory and log, refer to "Java EE Application Logs" in the "Java EE Application Operation" chapter.

The log directory is not rotated even when the IJServer cluster starts or stops, or restarts automatically following an abnormality.

JSP Compile Result Storage Directory

This is used as the JSP compile result destination. Any directory can be specified in scratchdir of Interstage Deployment Descriptor (sun-web.xml).

If the compile result is stored in this directory, compile processing can be prevented at the time of the JSP execution. For details, refer to "2.5.4 JSP Precompile".

JSP compile results are stored in the default directory below or in the specified directory.

Web application is not included in Java EE application

Windows32/64

[Java EE common directory]\nodeagents\ijna\[server instance name]\generated\jsp\j2ee-apps\[Java EE application name]\[Web application name]_war

Solaris32/64 Linux32/64

[Java EE common directory]/nodeagents/ijna/[server instance name]/generated/jsp/j2ee-apps/[Java EE application name]/[Web application name]_war

Single Web applications

Windows32/64

[Java EE common directory]\nodeagents\ijna\[server instance name]\generated\jsp\j2ee-modules\[Web application name]

Solaris32/64 Linux32/64

[Java EE common directory]/nodeagents/ijna/[server instance name]/generated/jsp/j2ee-modules/[Web application name]

Specifying content in scratchdir of Interstage deployment descriptor (sun-web.xml)

Windows32/64

```
<jsp-config>
  <!-- When the compile result storage directory under C:\temp\jspcompile is changed -->
  <property name="scratchdir" value="C:\temp\jspcompile" />
</jsp-config>
```

Solaris32/64 Linux32/64

```
<jsp-config>
  <!-- When the compile result storage directory under /usr/local/tmp/jspcompile is changed -->
  <property name="scratchdir" value="/usr/local/tmp/jspcompile" />
</jsp-config>
```



Note

Notes on the JSP compile result storage directory

- If the precompiled results are used in another environment, specify the JSP compile result storage directory in the Interstage deployment descriptor (sun-web.xml).
- Follow the specifications of each operating system for the characters that can be specified in the path.
- The JSP compile result is generated in the JSP compile result directory according to the following configuration:

Windows32/64

[JSP_comp_dir]\org\apache\jsp\[JSP_dir_in_Webapp]\[JSP_file]_jsp.java
[JSP_comp_dir]\org\apache\jsp\[JSP_dir_in_Webapp]\[JSP_file]_jsp.class

Solaris32/64 Linux32/64

[JSP_comp_dir]/org/apache/jsp/[JSP_dir_in_Webapp]\[JSP_file]_jsp.java
[JSP_comp_dir]/org/apache/jsp/[JSP_dir_in_Webapp]\[JSP_file]_jsp.class

- Depending on the JSP file name, the generated .java and .class JSP file name parts might not match.

- Depending on the Java version, the compile result might not be generated. For details, refer to "[2.5.5 JSP Operations Using Java Standard Edition 6](#)".

2.4.3 IJServer Cluster Multiple Process Configurations

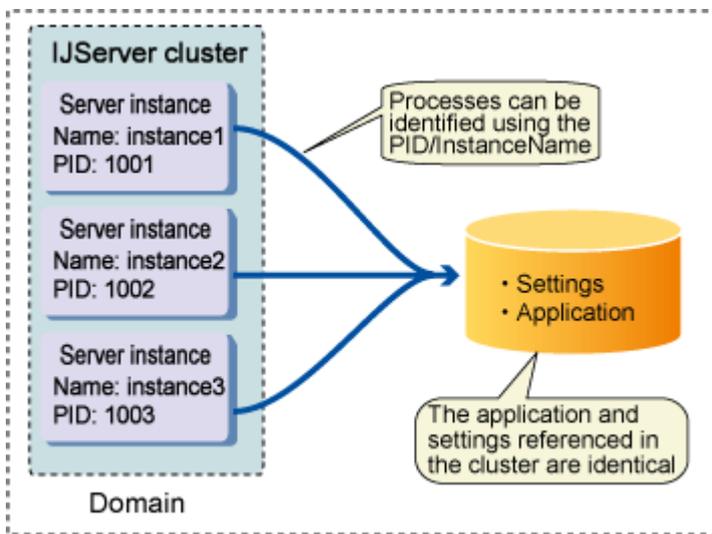
This section explains the following:

- [IJServer Cluster Multiple Process Operations](#)
- [Process ID and Server Instance Name](#)
- [Process ID Storage File](#)

IJServer Cluster Multiple Process Operations

When multiple server instances are registered for the IJServer cluster, multiple Java VM processes can be started/stopped in batch.

The server instance is for the Java VM process that is actually generated, so a Java VM process is generated for each server instance when the IJServer cluster is started.



Process ID and Server Instance Name

Each server instance has a different process ID and server instance name, and the user refers to this information to identify each process. On the other hand, the user application and definition information referenced in the IJServer cluster are identical.

The configurations when the IJServer cluster is started using multiple instances are explained below.

Item	Configuration	Explanation
Process ID	Instance	
Instance name	Instance	
Definition information	IJServer cluster	For settings information, identical settings are referenced in the IJServer cluster. However, items that cannot be duplicated between processes (such as the port number that is used for receiving requests) must be set for each server instance.
Deployed application	IJServer cluster	For predeployed applications, identical applications are referenced in the IJServer cluster.
Log	Instance	The log output directory and log file are created for each server instance.
Current directory	Instance	The current directory is created for each server instance.

Note

If the settings are updated while the IJServer cluster is running, the updated content is reflected in the server instances that are not running, but not on the ones that are. For server instances that are already running, the server instance status can be used to determine whether the updated content has been reflected.

If the server instance status is "required restart", then the updated content has not been reflected. To reflect the updated content in all the server instances that belong to the IJServer, either restart the IJServer cluster or restart all server instances.

The user application can obtain the IJServer cluster name and server instance name from the following properties:

IJServer cluster name

`com.sun.aas.clusterName`

Server instance name

`com.sun.aas.instanceName`

This functionality can identify processes from the application when the IJServer cluster is run using multiple server instances.

For example, to output the business data to the log file, obtain the server instance name from the application and add it to the file name so that data can be output per process in different files.

Example

Example of obtaining the server instance name:

```
String instanceName =  
System.getProperty("com.sun.aas.instanceName");
```

Process ID Storage File

The process ID of the server instance Java VM process is output to the file when the IJServer cluster is started.

This file is deleted when the IJServer cluster is stopped, however the file is not deleted if the server instance Java VM process shuts down:

Windows32/64

`[Java EE common directory]\nodeagents\ijna\[server instance name]\current\latest\.com_sun_appserv_pid`

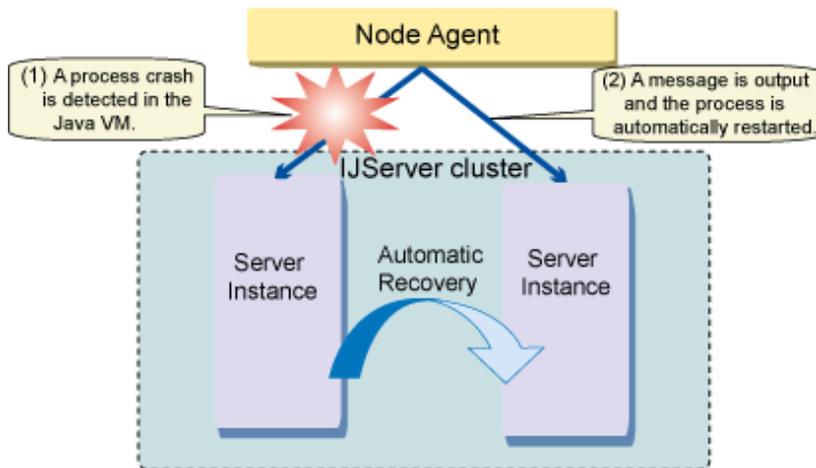
Solaris32/64 Linux32/64

`[Java EE common directory]/nodeagents/ijna/[server instance name]/current/latest/.com_sun_appserv_pid`

2.4.4 The Life-and-death Monitoring of the Java VM Process

The server instance Java VM process is monitored at 2-second intervals by the Interstage Java EE Node Agent service.

If a Java VM process crash is detected, the OM1011 message is output to the system log/event log and the process is restarted automatically.



2.4.5 Degeneration

If two or more server instances have been registered in the IJServer cluster, then the IJServer cluster can only run using some of the server instances. This status is called the "partially running" status.

Timing of the "partially running" Status

The IJServer cluster will have "partially running" status in the following scenarios:

- Automatic restart failed following abnormal termination of the process (*1).
- The stop operation was performed for some server instances.
- A server instance was added to an IJServer cluster with "running" status.

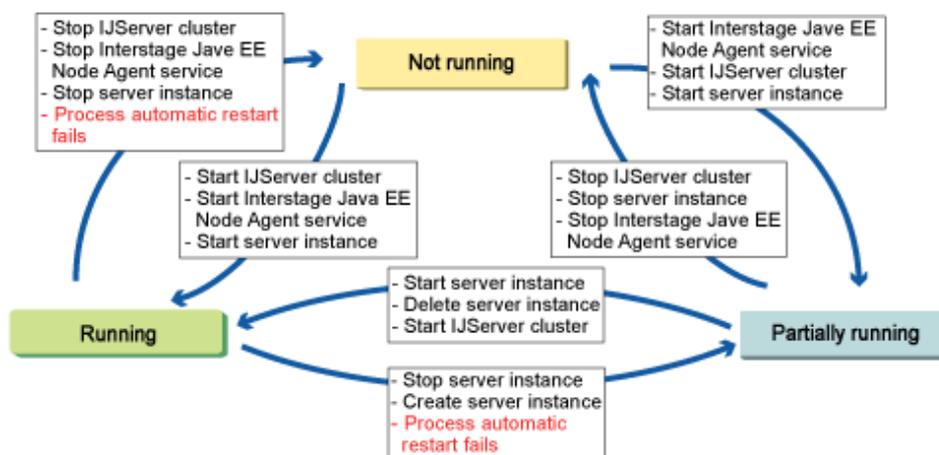
*1) If all server instances under the IJServer cluster are stopped because of the automatic restart failure, then the IJServer cluster will terminate abnormally and have "not running" status.

Restoration from "partially running" Status

The IJServer cluster start operation/server instance start operation can be used to restore an IJServer cluster to "running" status from "partially running" status.

IJServer Cluster Status Transition

The figure below shows the status transition for IJServer cluster.



Red is the processing that is used following an error during application

For details on the partially running/restore operations, refer to the following in the "Java EE Operation Commands" chapter:

- "start-cluster Subcommand"
- "start-instance Subcommand"
- "stop-instance Subcommand"

Also, refer to the Interstage Java EE Admin Console Help.

2.4.6 Controlling Insufficient Space in the Java Heap/Permanent Generation Space

Either of the two methods shown below can be selected as the "Control insufficient Java heap/Permanent generation space" operation when there is insufficient Java heap or Permanent generation space in the Java VM process of the server instance that is under operation. The default value is "Restart the process".

Restart the process

When the Java heap area, Permanent generation space, and C heap area are insufficient, the process for the insufficient area is restarted.

Return the java.lang.OutOfMemoryError to the application

In the same way as for the normal Java applications, java.lang.OutOfMemoryError is returned to the application and the Java EE container, and the process is continued for as long as possible.

This may not work correctly, depending on insufficient resources or volume, or on the timing of the error occurrence (for example, status 500 may be returned due to a request processing failure, the loss of session information, or an internal error).

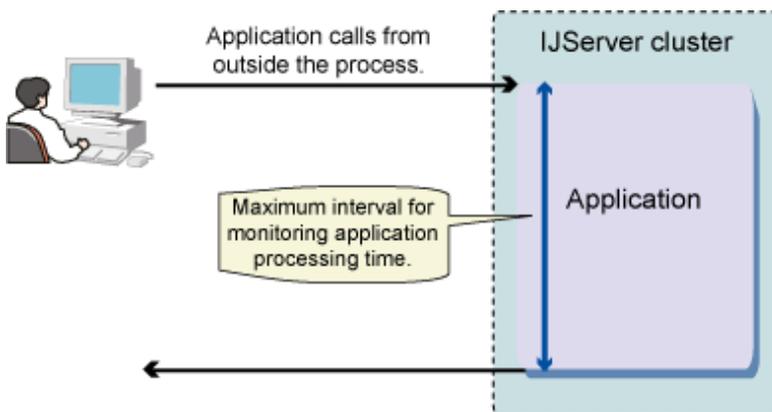
For details on the method that is used to configure these settings, refer to "Process Control Definition Items", "IJSERVER cluster" settings, in the "List of Definition Items" chapter.

2.4.7 Monitoring the Maximum Processing Time for Application and Response Monitoring

Monitoring the Application Processing Time

Application hang-ups and response delays can be detected by monitoring the maximum application processing time.

This functionality is enabled for when calls for the web application, EJB application and Message Driven Bean are made from outside the process.



The behavior when the maximum processing time is exceeded is specified in "[Behavior when the Maximum Application Processing Time is Exceeded](#)". The default value is [Output WARNING message].

The maximum application processing time default value is 480 (seconds).

If the maximum application processing time is exceeded, this fact will not be detected for the same instance for a period of 10 minutes. If you want it to be detected inside the 10 minute period then you will need to restart the cluster or instance.

Response Monitoring

Unlike the monitoring of the maximum application processing time, response monitoring is performed for the server instances under the IJServer cluster while it is running. In response monitoring, the keep-alive notice is launched from each server instance under the IJServer cluster to the Interstage Java EE Node Agent service at fixed (5-second) intervals while the IJServer cluster is running.

If for some reason no notice is received for 30 seconds, it will be assumed that a problem has occurred in the server instance operation.

Even if the response monitoring time is exceeded, the behavior that was specified in "[2.4.7 Monitoring the Maximum Processing Time for Application and Response Monitoring](#)" will apply.

Note

The 10-minute period mentioned above cannot be avoided for automatic restart of a process following its abnormal termination and for the stopping of a process following timeout.

Behavior when the Maximum Application Processing Time is Exceeded

Warning Message

The following processing is performed when the maximum processing time has elapsed.

1. The following WARNING messages are output to the event log/system log:
 - When maximum application processing time monitoring is used: OM1020
 - When response monitoring is used: OM1120
2. The first full thread dump is output to the Java VM log.
3. Ten seconds after step 2, the second full thread dump is output to the Java VM log.

Note

- Processing continues without the thread that detected the maximum processing time for the application being collected. For this reason, application processing may succeed even after a WARNING message is output.
- If the maximum application processing time is exceeded at the same time in multiple server instances under a specific IJServer cluster, the OM1020 message will only be output once.

Perform Application Forced Stop

When the maximum application processing time or response monitoring time is exceeded, the following processing will be performed:

1. The following ERROR messages are output to the event log/system log:
 - When maximum application processing time monitoring is used: OM1005
 - When response monitoring is used: OM1124
2. The first full thread dump is output to the Java VM log.
3. 10 seconds after step 2, the second full thread dump is output to the Java VM log.
4. 10 seconds after step 3, the process is stopped by force.

Note

It takes a minimum of 20 seconds to stop the process by force, therefore the application may return normally during that time.

Additionally, the following states may occur, depending on when the process is stopped by force:

(This excludes when all the responses could be sent to the client normally)

- When the application has unsent responses

A response is not returned to the client, and communication is broken.

However, if the access from the client is via a web server, the web server connector detects an error and returns status code 500 to the client.

- When the application sent some responses

If only some of the responses were sent and the process is stopped by force before the sending of the responses is complete, the data that has already been sent (status line, header, message body) will be sent to the client.

This is because the data that was already sent to the client cannot be recalled at the point the process is stopped by force.

In this case, there is a dependency on the result that was returned by the application, therefore status code 200 will not always be output.

2.4.8 Alert Monitoring

Java VM Heap usage amount and Permanent generation space can be monitored using the alert monitoring function.

When insufficient Java heap and possible deterioration of service response because of repeated Garbage Collection is detected, the Java heap area problem is notified by a warning message (ISJEE_OM3204). The event log/system log and server log are output to the warning message.

Windows32/64 **Solaris32** **Linux32/64**

The warning message is output to the event log/system log and server log.

Solaris64

The warning message is output to the server log. For details on detecting IJServer cluster alert monitoring warning messages that monitor the event log/system log, refer to "[6.16 Alert Monitoring Function Tuning](#)", and then enable the output to the event log/system log.

For detailed information on the warning message content, output conditions and remedial action, refer to "[6.17 Action when a Warning is Generated by the Alert Monitoring Function](#)".



If the Java VM heap area and Permanent generation area usage increases rapidly in a short time, the alert monitoring warning message may not be output. In this case, a message indicating that there is insufficient memory is output to the server log, therefore follow the action advised in that message.

2.5 Functionality Provided in Web Container

The web container in this product provides the following functionality:

- [Servlet 2.5](#)
- [JSP 2.1](#)
- [Error Page](#)
- [JSP Precompile](#)
- [JSP Operations Using Java Standard Edition 6](#)

2.5.1 Servlet 2.5

The web container performs Servlet control such as Servlet start (class loading/instantiation) and Servlet call. This is the basic functionality for Servlet operations. The Servlet that is compliant with Java(TM) Servlet API 2.5 can be executed. To start the Servlet, load the Servlet and then initialize it (using the init method).

After that, the Servlet always remains (is instantiated) on the web container and waits for calls from the web browser.

When it is called from the web browser, the service is executed (using the service method).

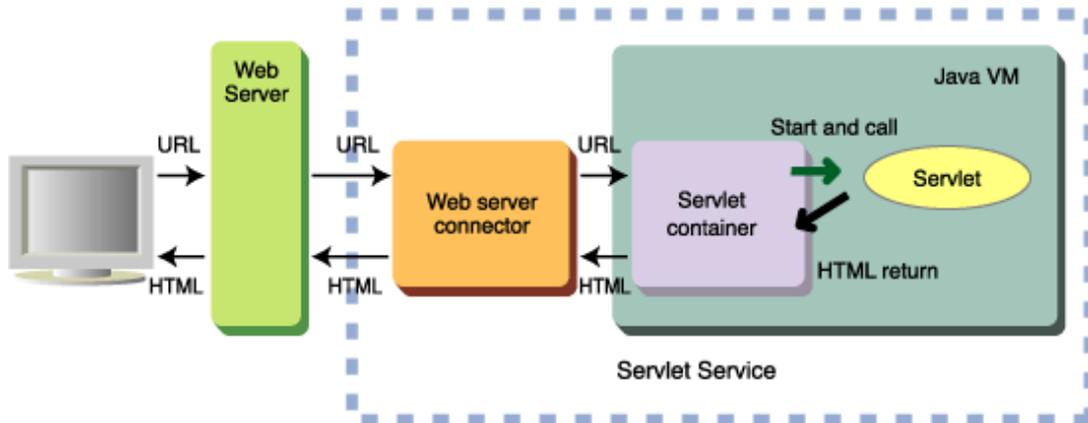
The Servlet is stopped at the same time as the web container.

At this time, the Servlet is destroyed (using the destroy method).

The process flow is explained below.

1. When the URL is entered from the web browser, the web container receives the URL via the web server.
2. The web container analyzes the URL, and starts/calls the Servlet.
3. The Servlet returns the HTML.

The web container returns the output result HTML to the web browser via the web server.



Listener

Listener is the class that is called when a web application lifecycle event occurs. When the lifecycle event occurs in the web application, the defined Listener starts automatically.

Filter

Filter is the functionality that is used to process the tasks that filter requests to resources (Servlet or static contents) or responses from resources.

Session

Session is the feature that processes multiple requests from the same web browser as an access from the same web browser using a servlet. Using this feature, it is possible to inherit the previous processing result using the servlet, so continuous processing is possible.

In this product, the settings that are related to the session can be specified in the "session-config" tag of sun-web.xml. For details, refer to "Interstage Deployment Descriptor", "Tag and Description of the Interstage Deployment Descriptor", "session-config" tag in the "Java EE Application Development" chapter.

2.5.2 JSP 2.1

The JSP that is compliant with the JavaServer Pages 2.1 Specification can be displayed.

The JSP operates as the Servlet.

The web container converts the JSP to a Servlet source file and compiles it.

After that, the generated Servlet is started.

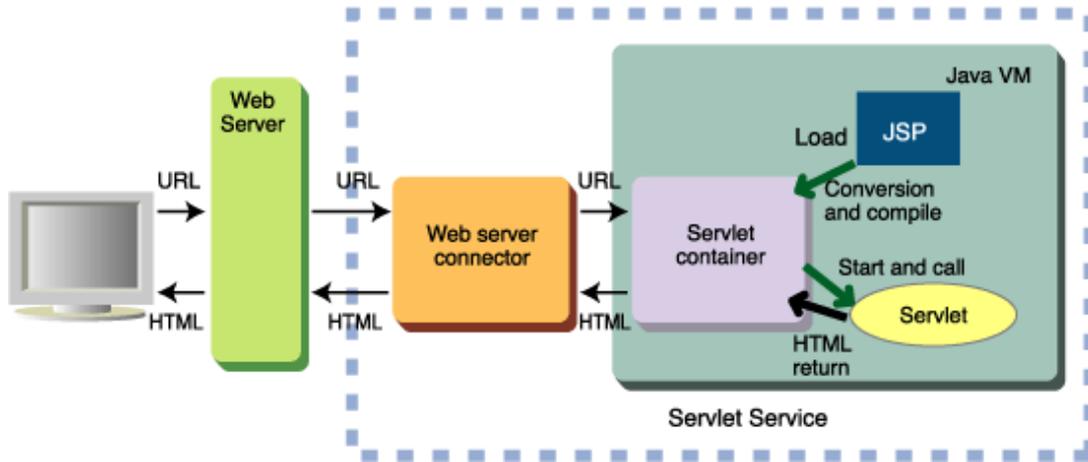
When the web container stops, the Servlet is destroyed (using the destroy method).

The process flow is explained below.

1. When the URL is entered from the web browser, the web container receives the URL via the web server.
2. The web container analyzes the URL and loads the JSP.
3. The web container converts the JSP to a Servlet source file and compiles it.
4. The compiled Servlet is started.

5. When the Servlet is called, the Servlet returns the HTML.

The web container returns the output result HTML to the web browser via the web server.



In this product, JSP-related settings can be specified in the jsp-config tag of sun-web.xml. For details, refer to the sun-web.xml "jsp-config" tag.

2.5.3 Error Page

The error page is the contents returned to the client when an error occurs.

Three following types of error page are displayed in the browser:

- Web server error page
- Web container error page
- Web application error page

Of these, the error pages that can be customized are the web server error page and the web application error page.

For details on the settings, refer to the following:

- Web server error page: Web server manual
- Web application error page: The Servlet/JSP specifications and web application deployment descriptor (web.xml)

This section explains the trigger for each error page.

Error page	Trigger for the error page	Remarks
Web server error page	<ul style="list-style-type: none"> - When there is an error in the requested URL - When an error occurred in the web server connector 	When a request is processed in the web container, this error page is not displayed.
Web container error page	<ul style="list-style-type: none"> - When execution of the web application failed - When an error occurred in the web application and the corresponding error page is not set 	For details, refer to the Servlet specifications.
Web application error page	<ul style="list-style-type: none"> - When an error occurred in the web application and the corresponding error page is set 	For details, refer to the Servlet specifications.

Note

For details on points that should be noted about the error pages, refer to the following web application notes:

- Error and Exceptions

- Error pages

2.5.4 JSP Precompile

JSP normally compiles when the initial request is made. For this reason, there are following problems.

- For the first request, the response may take a while to return compared to the second request and thereafter.

However, the time taken for the compile when Java Standard Edition 6 is used has improved considerably compared to when Java Standard Edition 5 is used. For details, refer to "[2.5.5 JSP Operations Using Java Standard Edition 6](#)".

- When there is a syntax error in JSP, the operation may be problematic since the compile error is detected when the initial request is made.

The above problems can be avoided when the JSP pre-compiles shown in the table are used.

JSP pre-compile method	Compile environment	Overview
Compile at the time of the deployment	Operating environment	The compile is executed when the web application is deployed.
Deploying a web application that contains the compile result	Development environment	The compiled result is stored in the web application and deployed to the operating environment.
Copying the compile result that was generated in the development environment to the operating environment	Development environment	The compiled result is copied to the JSP compile result storage directory of the operating environment.

Each JSP pre-compile method is explained below.

Function for Compiling JSP on Deployment

This functionality is used to compile JSP when web applications that contain JSP are deployed. When this functionality is used, JSP contained in the web application is compiled on deployment of the web application and then deployed to the IJServer cluster.

This functionality can be used according to either of the following methods.

- Selecting the "Precompile JSPs (JSP precompile)" checkbox in the Interstage Java EE Admin Console when the web application is deployed.
- Specifying the "-precompilejsp" option when using the deployed command (asadmin command deploy subcommand).

The compile result is stored in the default JSP compile result directory and used in the running of the corresponding IJServer cluster.

If "scratchdir" is specified in Interstage Deployment Descriptor (sun-web.xml) of the deployed web application, the compile result that was generated in the compile at the time of the deployment will not be valid. Do not specify "scratchdir" when "Compile at the time of the deployment" is used.

For details on the JSP compile result storage directory, refer to "[2.4.2 IJServer Cluster File Configuration](#)".

Using the Results of JSP Precompiled in Another Environment

Use the JSP pre-compile result that was compiled in the other environment (development environment) in the operating environment. The web application can be run without performing the JSP compile in the operating environment.

Deploying a web application that contains the compile result

The compile result is stored in the web application and deployed to the IJServer cluster.

The procedure is explained as follows:

1. Compile JSP in the web application using the jspc command. For details, refer to "jspc" in the "Java EE Operation Commands" chapter.
2. Copy the compile result in to WEB-INF/classes or WEB-INF/lib.

3. Set the sun-web.xml "usePrecompiled" property to "true".
4. Change it to a war file (web application).
5. Deploy the war file to the IJServer cluster.

For a detailed explanation on the relationship between steps 2 and 3, refer to "Interstage Deployment Descriptor", "Tag and Description of the Interstage Deployment Descriptor", "session-config" in the "Java EE Application Development" chapter.

Example

Example: Compiling JSP that is contained in the web application (JspSample), and storing the class file that was generated under WEB-INF/classes

```
# jspc -webapp c:\temp\JspSample -v -compile -d c:\temp\JspSample\WEB-INF\classes
# yyyy/mm/dd hh:mm:ss org.apache.jasper.JspC processFile
# INFO: Built File: \index.jsp
#
```

Copying the compile result generated in the development environment to the operating environment

Copy the compile result generated in the development environment to the JSP compile result directory of the operating environment.

If this is copied to the default JSP compile result storage directory, it might corrupt the Interstage environment. Specify the JSP compile result storage directory in Interstage Deployment Descriptor (sun-web.xml) in advance, and then copy the compile result to the specified destination directory.

For details on the JSP compile result storage directory, refer to "[JSP Compile Result Storage Directory](#)".

The procedure is explained as follows:

1. In the development environment, compile JSP in the web application using the jspc command.
2. Deploy the web application to the operating environment.
3. Copy the compile result to the operating environment directory specified in Interstage Deployment Descriptor (sun-web.xml).

Note

The timestamp of the copied resources must be later than the timestamp of step 2. For details, refer to "Notes About Web Applications", "Switching JSP" in the "Release Information" chapter.

The compile result is reflected using the IJServer cluster startup (restart) or JSP auto reload function. If the IJServer cluster is running and a request is made to JSP or a fixed interval JSP auto reload function is run before step 3, however, the target JSP compile is executed using the extension of that processing.

Note

Notes about JSP pre-compile

The IJServer cluster must be able to read/write the JSP compile result. If the IJServer cluster start user is changed, add permissions so that the IJServer cluster start user can read/write the JSP compile result.

For details on IJServer cluster start users, refer to "[2.1.7 Customizing a Service Operator User](#)".

2.5.5 JSP Operations Using Java Standard Edition 6

IJServer cluster operations using Java Standard Edition 6 are supported in this product.

The web container changes the JSP compile logic according to Java Standard Edition 6 and reduces the compile time considerably. Accordingly, the response return is quicker if the compile is executed at the same time as JSP.

If JSP pre-compile is used, JSP compile processing does not run regardless of whether the compile logic is changed.

The files generated at the time of the JSP compile by changing its logic are as shown in the table below.

The table shows the differences in the compile result depending on the Java version. For details on the locations of the generated files, refer to "JSP Compile Result Storage Directory".

Operation	Java Standard Edition 5 (*1)	Java Standard Edition 6
JSP pre-compile is specified at the time of the deployment.	Java source files and class files are generated.	Java source files and class files are generated.
The compile is executed at the time of the JSP execution. (*2)		Files are not generated. (*3)

*1) Java Standard Edition 5 is not provided in this version.

*2) The Java source file generation condition changes by specifying the Interstage Deployment Descriptor (sun-web.xml) "keepgenerated" property. For details, refer to "Interstage Web Application deployment descriptor (sun-web.xml)" in the "Java EE Application Development" chapter.

*3) There is no impact on the JSP execution. If you want to analyze the Java source files for an investigation into the cause of the JSP compile error, however, specify the Interstage Deployment Descriptor (sun-web.xml) "keepgenerated" option.

2.6 About Session Recovery

Interstage Application Server provides a session recovery function for Java EE applications. Servlet session information is saved on another server called the session registry server. The Servlet session information is then carried over to another web container so business operations can continue if the web container process or machine crashes.



Session recovery can be used in the following products. Note that it cannot be used in Web Package.

- Session Registry Server
 - Interstage Application Server Enterprise Edition
- IJServer cluster Session Registry Client
 - Interstage Application Server Enterprise Edition
 - Interstage Application Server Standard-J Edition

2.6.1 Session Recovery Functionality

How Session Recovery Works

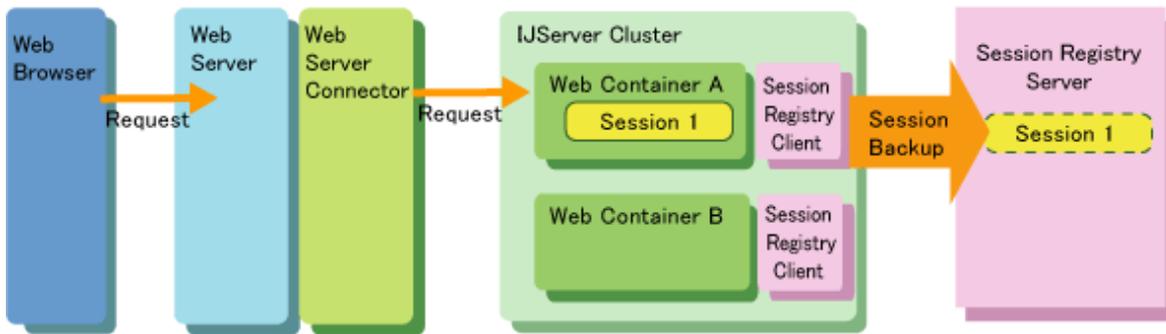
When a web container process or machine crashes, session recovery makes it possible for a web application to continue because another web container which is running inherits the Servlet session information.

The session information is managed in the web container in individual web application units. Normally, if the web container has crashed, the session information that was stored in that container will be discarded.

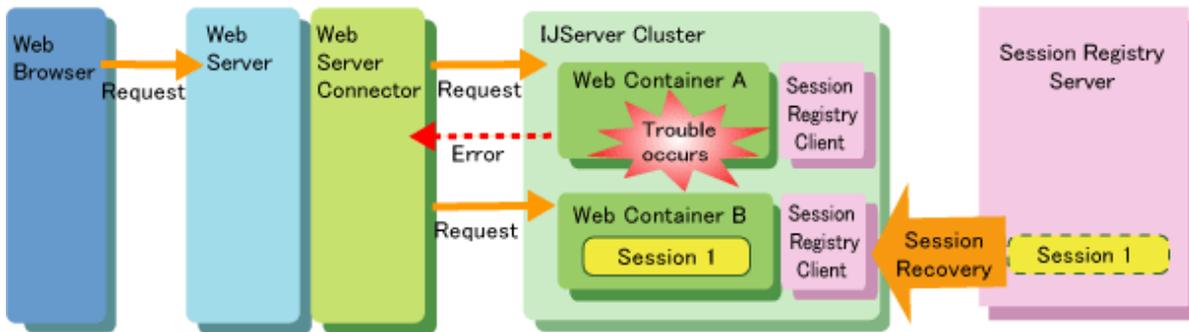
When session recovery is enabled, the session information that was generated in the web container is backed up in the session registry server. If an error occurs, the session information is recovered and inherited by another web container, so processing can continue.

Additionally, if the IJServer cluster was restarted, Servlet sessions that were running before the restart can continue without being destroyed.

Session Backup



Session Recovery



Session Recovery Components

A session recovery configuration consists of the following components:

Session Registry Server

The session registry server is a server that saves the Servlet session information that was used in the IJServer cluster.

When an error occurs, the session is recovered from the session registry server using session information that was saved before the error occurred. This enables the web application to continue with no apparent disruption to users.

IJServer Cluster (Web Container)

This is the web application runtime environment.

For the web application to continue after an error occurs, the environment must be built on concurrent processes or multiple machines.

Session Registry Client

When session recovery is enabled, the session registry client runs as the current session management module as an add-in to the IJServer cluster (web container). The session registry client performs session management and communication with the session registry server.

Web Server Connector

The web server connector has the role of transferring requests that were received by the web server to the web container.

Normally, when a request from the web browser has a Servlet session, the web server connector dispatches that request to the web container that created the session. However, if the request could not be dispatched to the web container, the web application operation can be continued by dispatching the request to another operable web container.

Note that operations that do not use a web server connection are also possible. For details, refer to "[4.7.1 Operations for Accessing Web Applications](#)" in the "Java EE Application Operation" chapter.

2.6.1.1 Session Backup

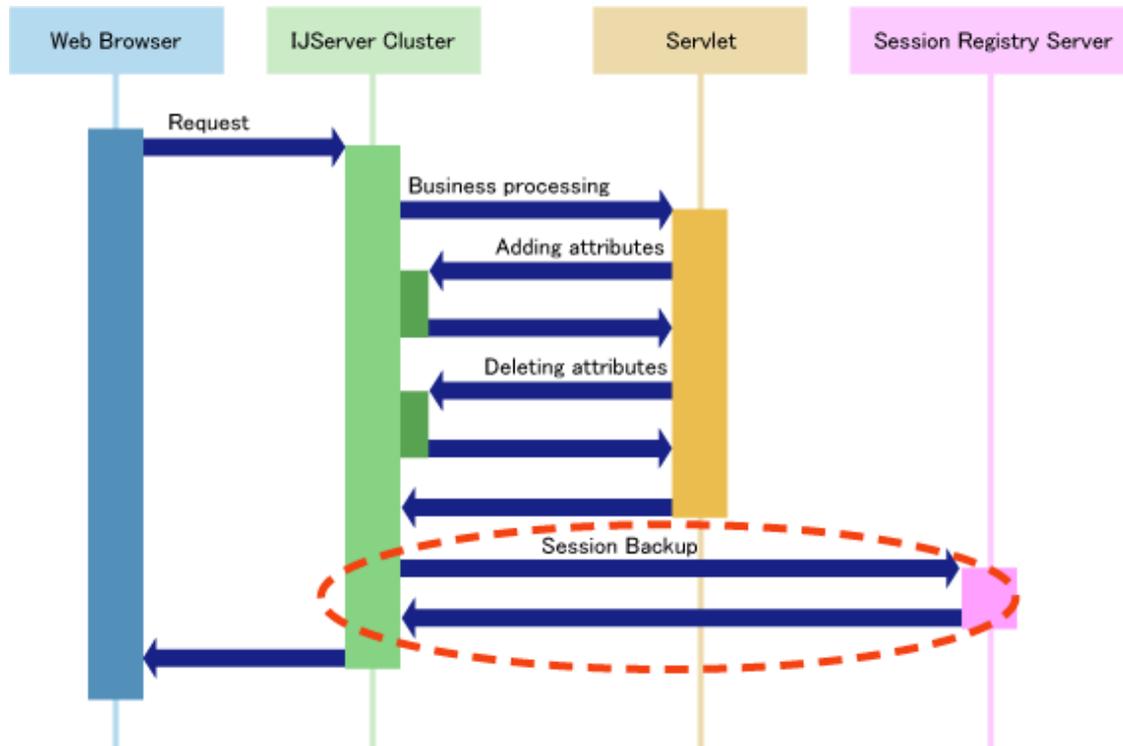
The session is backed up in the session registry server. If an error occurs in the web container, the session that was backed up in the session registry server is recovered by another web container, so the session can be inherited by the other web container.

Triggering Session Backup

The following modes can be selected for session backup.

Session Backup for Each Request (Following Completion)

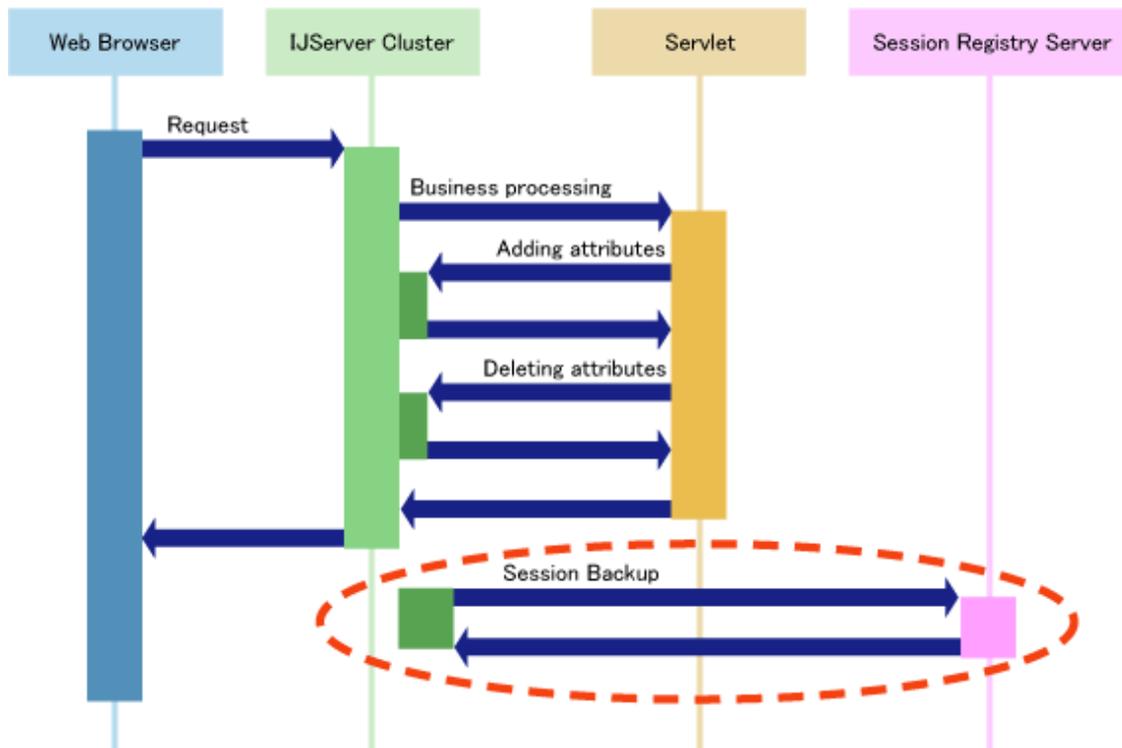
The session is backed up after the request is complete. Additionally, the response to the web browser waits until the session is backed up to the session registry server before completing.



- The time for processing requests from the web browser is also included in the session backup time, therefore the time for processing requests from the web browser is long when compared to backup at fixed intervals.

Backup at Fixed Intervals (Default Value)

After the request processing is complete, the session is backed up on a regular basis by the web container.



- The backup is performed independently of the request processing, therefore there is no direct impact on performance until each request is returned.
- If the web container has crashed before the session is backed up in the session registry server, that session cannot be recovered.

Setting Method

Set the trigger for the backup in the session registry client lifecycle module property (backupMode). The default value for the backup trigger is "interval" (fixed interval), and the default value for the backup interval is 5 seconds.

For details on session registry client settings, refer to "4.10.3 Session Registry Client Settings" in the "Java EE Application Operation" chapter.

Each backup trigger is based on the relationships shown below.

- The recency of the session at the time of recovery (backup of the session that has the newer status)
 - Each request > Fixed interval
- Performance
 - Fixed interval > Each request

When the Session Backup has Failed

Even if the session backup has failed, no error is notified to the web browser or web application. The reason is that, if an error is notified to the web browser and web application after the session backup has failed, using session recovery will impact application performance.

Additionally, if the session backup has failed, the session registry server will be marked as being unusable thereafter, and communication (backup, recovery) will not be performed until it can be used again.

For details on the triggers that can be used by the session registry server, refer to "2.6.1.4 Session Recovery Monitoring".

Processing a Session with Multiple Requests

According to the Java Virtual Machine Specification, all requests that handle the same single session must be processed in one Java VM at the same time. Accordingly, if the session was recovered by another web container, the original web container session must be destroyed.

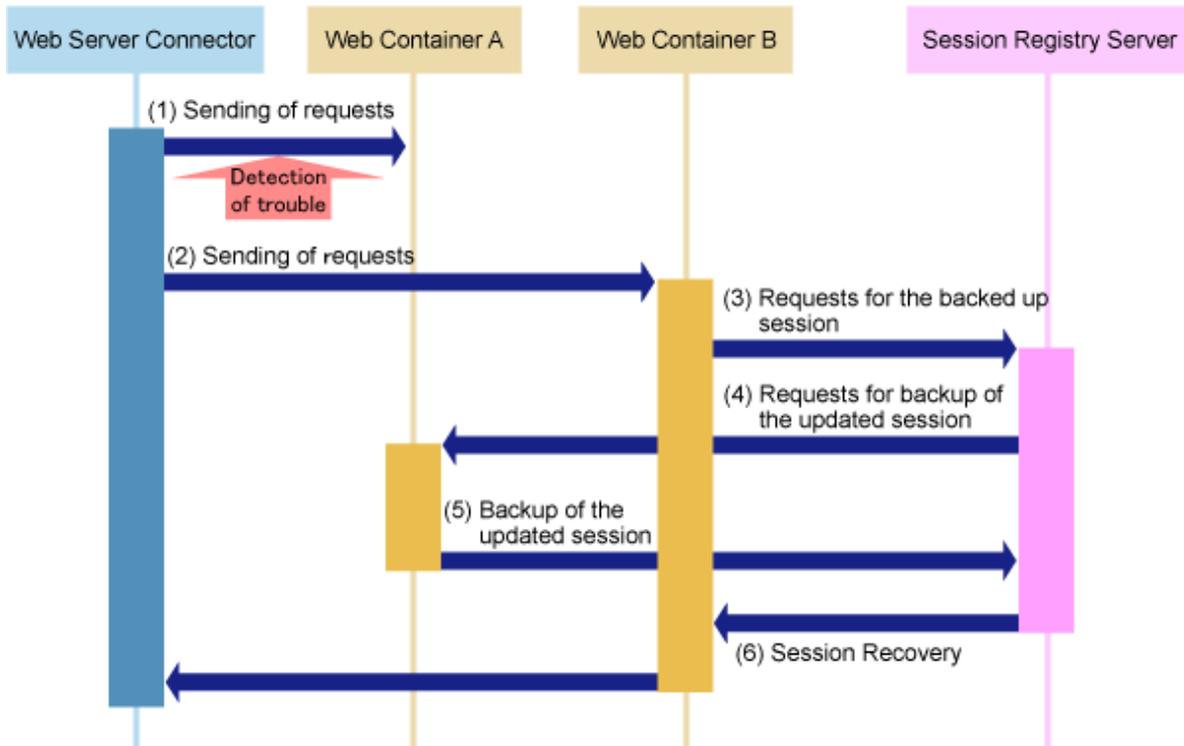
When the session is recovered by the other web container, the session registry server will attempt to destroy the original session wherever possible. However, it may not always be possible to destroy the original session, because of a network error for example. In this case, the original session is destroyed when the communication between the web container and the session registry server is recovered.

2.6.1.2 Session Recovery

Session Recovery Processing

If the web container does not have the session that corresponds to the session ID that was notified by the web browser (because the web container that handled the original session has crashed, for example), the session that was backed up by the other container is obtained from the session registry server and the request is then processed.

If the session registry server has received a request from the web container for a session, it does not simply return the backed up session; it also returns the latest session wherever possible, and destroys the original web container session, as shown in the figure below.



1. The web server connector attempted to send the request to Web Container A, however a fault occurred in Web Container A, therefore the attempt to send the request failed.
2. The web server connector dispatches the request to Web Container B.
3. Web Container B does not own the session that was sent to it, therefore it makes a request for a session that was backed up in the session registry server.
4. The session registry server makes a request to Web Container A, the original owner of the session, for the latest session.
5. Web Container A hands the session over to the session registry server.

The session on Web Container A is destroyed as a result of the handover.

At this time, HttpSessionListener.sessionDestroyed and HttpSessionBindingListener.valueUnBound are not called.

6. The session registry server recovers this latest session which it has received for Web Container B.

If the latest session cannot be obtained, because an error has occurred in communication with Web Container A, for example, the session registry server will recover the session that has already been backed up for Web Container B.

Additionally, in (4), if communication cannot be performed with the corresponding (original owner of the session) web container, or the request processing of the latest session for one web container has high concurrency, the session registry server returns the session that was

backed up in the session registry server without making any more requests for the latest session. For this reason, it will not always be possible to obtain (recover) the latest session; however, the session that was backed up using the specified trigger will be recovered.

Note that, if the session in Web Container A in (5) is being used, the session will not be backed up until the session is free. The amount of time that may be required for that to occur will depend on the application processing, so a maximum wait time can be specified.

If the session is still in use when this wait time is exceeded, the session will not be recovered for Web Container B.

At this time, in the case of getSession() and getSession(true), a new session is returned to the application. In the case of getSession(false), null is returned to the application.

HttpSessionActivationListener

The objects that are bound with the session can receive notifications from container events such as session inactivation and activation. A container that migrates session between Java VMs or persists sessions is required to notify all attributes bound to sessions implementing HttpSessionActivationListener.

Event	Method	
	sessionWillPassivate	sessionDidActivate
Recovery	Execute in the original web container	Execute in the recovery destination web container
The web container stops	Execute before the session is backed up	-
The web container starts	-	Execute after the session was recovered

When the Session Cannot be Recovered

Even if session recovery was used, there is no session in the session registry server in the following cases, therefore it is not possible to recover the session.

- The backup was performed after the maximum number of sessions that are retained in the session registry server was exceeded, and an (old) session that was discarded from the backup was recovered.
- The web container crashed before the backup, and "Fixed Interval" was set as the session backup trigger.
- The session registry server was restarted when the JJSERVER cluster and session serialization were disabled.
- Even if session serialization was enabled, the session registry server crashed, and the web container was restarted, before serialization was performed during the interval that was specified.

For details on the scope of sessions that are recovered, refer to "2.6.2 Session Recovery Scope".

2.6.1.3 Enabling/Disabling Session Recovery in the URI

The extension for the request URI from the web browser can be specified to disable session recovery for static content, for example.

Setting Method

Set the extension that disables session recovery in the session registry client lifecycle module property (excludeExt).

For details on the session registry client settings, refer to "4.10.3 Session Registry Client Settings" in the "Java EE Application Operation" chapter.

Usage Scenario

A scenario in which this functionality is used is shown below.

If there was a request from the web browser to static content (html, or general graphic files that are embedded in the html) in addition to dynamic content which uses the session explicitly (Servlet or JSP), the static content is also treated as part of the web application. For this reason, if a session was generated, the lastAccessedTime of the session (the time at which the request associated with the session was last sent by the web browser) is updated.

For this reason, the session is also backed up when there was a request for static content. Additionally, if the server has crashed, for example, session recovery is also performed for the static content.

However, if the update of lastAccessedTime that results through access to the static content is not particularly important to the application, by specifying the extension the session backup and recovery can be disabled. This will prevent impact on performance and unnecessary recovery processing.

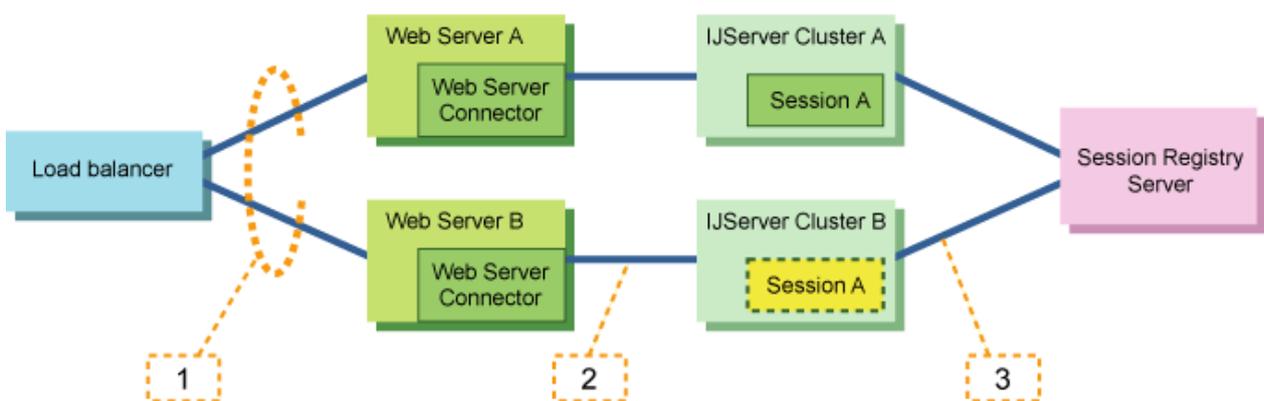
 **Note**

- If the resource that executed this definition was accessed, the backup to the session registry server will not be performed. Accordingly, if only the resource that executed this definition was accessed, the session on the session registry server may time out and be deleted from the backup.
- When form-based authentication is used, the authentication information is stored in the Servlet session. For this reason, in the cases shown below, the session may be new, so it may be necessary to perform authentication again.
 - Session recovery is enabled, and
 - In the session registry client (web container) "Session Recovery Settings", the extension was specified in "End of the non-session URL", and
 - A request was made for the specified extension content by the web browser, and
 - The request was dispatched to another web container by performing the IJServer cluster restart operation, for example, or by stopping the IJServer cluster, or through the IJServer ending abnormally, for example, and
 - The corresponding content is subject to authentication.

Notes on Load Balancing in the Independent Header of the Web Application (or a String Embedded in an Independent URL)

In the configuration shown in the figure below, if load balancing is performed through the independent header of the web application (or a string embedded in an independent URL), these independent values will not be appended to the request to the static content. For this reason, the load balancer may sometimes dispatch the request to an IJServer cluster other than the IJServer cluster that generated the Servlet session. In this case, even though the IJServer cluster is running normally the session will be recovered to another IJServer cluster (when session management using cookies is used).

For this reason, session recovery is active frequently, and this causes a degradation in the response.



1. If the dispatch is performed using the independent header of the application, the request to the static content may sometimes be dispatched to web server B, even if the request belongs to web server A.
2. Request session A does not belong to IJServer cluster B, therefore there is no dispatch destination for the web server connector. In this case, the session is dispatched to the IJServer cluster randomly (in this example, to IJServer cluster B).
(Depending on the system configuration, the internal definition may also sometimes be the same, and the session may also sometimes be dispatched to IJServer cluster B)

3. Session A is not in IJServer cluster B, therefore this session is obtained from the session registry server. Session A of Web Container A is destroyed.

In the above type of load balancing, session recovery must be disabled for the corresponding content.

2.6.1.4 Session Recovery Monitoring

When session recovery is used, there is monitoring to check whether the IJServer cluster and the session registry server can be used on a reciprocal basis.

If a fault was detected, the IJServer cluster and the session registry server are excluded as processing targets from the point when they are marked as being unusable until they can be used again.

The IJServer cluster sends messages for monitoring to the session registry server port for a fixed interval (10 seconds), and checks that a response was returned normally.

If no response returns inside the wait time limit (20 seconds), the session registry server will be excluded as a backup target for sessions marked as being unusable. After that, if the response from the session registry server marked as being unusable returns normally again, the Session Registry can be used so the session backup will be performed.

The session registry server checks that the messages for monitoring are sent from the IJServer cluster at fixed intervals of up to 30 seconds.

If the message for monitoring was not sent from the IJServer cluster, the IJServer cluster will be excluded as a processing target when the session marked as being unusable is recovered.

2.6.1.5 Web Server Connector Fault Monitoring

The web server connector first detects web container errors when the request from the web browser is dispatched to the web container. (It may take from several seconds to several minutes for the web server connector to detect an error.)

Additionally, the web server connector cannot detect the fact that the web container has recovered. For this reason, the dispatch of the request to the web container is performed again one minute after the detection of the error. At this time, the reconnection that occurs if the web container has not recovered will fail.

By using web server connector fault monitoring, the above problem can be avoided.

In web server connector fault monitoring, if load balancing operations are performed by separating the IJServer cluster and the web server on different server machines, the operational status of the distribution destination IJServer cluster is monitored so that an IJServer cluster in which a fault has occurred can automatically be excluded as a dispatch target, or an IJServer cluster which has recovered from a fault can automatically be restored as a dispatch target.

When using session recovery, it is recommended that you also use web server connector fault monitoring at the same time.

For details on web server connector fault monitoring, refer to "Monitoring Web Server Connector Faults" in the "Java EE Application Operation" chapter.

2.6.1.6 Maximum Number of Sessions that are Retained in the Session Registry Server

The number of sessions that are retained in the session registry server can be restricted in order to avoid system crashes that result from a lack of resources, such as insufficient memory.

The number of sessions that are retained in the session registry server is specified in the "_Dcom.fujitsu.interstage.jservlet.sessionrecovery.backup.limit" JVM option of the IJServer cluster. For details, refer to "[4.10.2 Session Registry Server Settings](#)" in the "Java EE Application Operation" chapter.

If the number of sessions that are retained in the session registry server exceeds the maximum number specified, the backup of the session that has not been used for the longest amount of time is discarded, and the session for which the backup request was made is retained by the session registry server instead.

The session for which the backup was discarded will have no backup in the session registry server until there is a further request to back up that session. For this reason, if there is a recovery request for that session (when the web container crashes, for example), that session will not be recovered.

Even if the backup was discarded, it does not mean that the session itself is destroyed. For this reason, it will be possible to continue business operations for that session provided that a fault that requires session recovery does not occur. At this time, the session is backed up again because this session is used, and the backup of the session that has not been used for the longest amount of time is discarded.

2.6.1.7 Session Serialization

The session information that was backed up in the session registry server can be serialized. The enabling/disabling of serialization is specified in the "-Dcom.fujitsu.interstage.jservlet.sessionrecovery.session.store" JVM option of the IJServer cluster. For details, refer to "3. Session Registry Server Environment Settings" in the "Java EE Application Operation" chapter.

If session serialization was enabled, the session that was backed up in the session registry server will be written to the serialized file.

If the session registry server was restarted, the session will be read from the serialized file and the session will be restored.

Additionally, if session serialization was enabled, the session will also be written to the serialized file when the session registry server is stopped.

Timing for Serialization of the Session

The timing for the serialization of the session can be specified.

The session registry server serializes the session at the interval that was specified.

Archive Destination for the Serialized File

The archive destination for the serialized files of the session can be specified as any directory for each session registry server.

The "sr" directory is created under the directory that was specified, and the serialized files are output under this directory. If this directory already exists, it will be used without any changes being made to it.

Reading the Serialized File

If session serialization was enabled, the session registry server will read the serialized file at the point where there is communication from the IJServer, after the IJServer was started.

Note

- To use the session registry server with the cluster service function, enable session serialization and specify a shared disk path that can be used from each node as the archive destination for the serialized file of the session.
- If the session registry server was restarted before session serialization was performed, the session will be restored from the serialized files of the session that was backed up last.
- The time that is required for serialization will depend on the items shown below.
- Additionally, the next serialization will be performed after the interval that was specified since the completion of the previous serialization has elapsed.
 - Size of the object that was stored in the session attribute
 - Number of sessions that were generated/updated
 - File system performance
- Before using serialization, delete the serialized files in the following cases:
 - Ending an application operation (undeploying an application or deleting an IJServer cluster)
 - Changing the archive destination for the serialized file
 - Deleting the session registry server
- Uninstalling Interstage Application Server
- **Windows32/64**

Network drives or UNC paths cannot be specified as the archive destination for the serialized file.

2.6.1.8 Clearing All Sessions

To clear all the sessions on the business system in order to initialize business operations, or to free up resources such as memory, stop the IJServer cluster and the session registry server, and then restart them.

In session recovery, stopping and then restarting the IJServer cluster and the session registry server causes the session to be backed up and recovered again, therefore it is not possible to clear all sessions.

Additionally, if session serialization was enabled, delete the serialized files.

2.6.1.9 Session Recovery Log

The session recovery log is output to the following two locations:

- IJServer cluster

Session registry client error messages, warning messages, and information are output to the server log on the IJServer cluster.

- Session registry server

Session registry server error messages, warning messages, and information are output to the server log on the IJServer cluster on which the session registry server is running.

Setting Method

The output destination, log file rotation, and number of generations archived for each log are set using the following menu in the Interstage Java EE Admin Console:

- [Settings] > [<cluster name>-config] > [Logger Settings]

The above setting can also be configured using the asadmin command. For details on the asadmin command, refer to "asadmin" in the "Java EE Operation Commands" chapter.

2.6.1.10 Destroying Expired (Timed Out) Session Registry Server Sessions

Normally, the session registry server destroys a session when it is notified by the IJServer cluster that the session is invalid.

However, if the IJServer cluster has crashed, the session registry server will not be notified that the session is invalid, therefore unnecessary sessions will remain and overwhelm the session registry server resources.

For this reason, the session registry server monitors the sessions it retains at fixed intervals, and avoids its resources being overextended by destroying the expired (timed out) sessions. The default value for this monitoring interval is 60 seconds.

The monitoring interval is specified in the "_Dcom.fujitsu.interstage.jservlet.sessionrecovery.clean.interval" JVM option of the IJServer cluster. For details, refer to "[3. Session Registry Server Environment Settings](#)".

In the monitoring process, expired sessions are simply deleted. For this reason, if the IJServer cluster crashes and the session exists only on the session registry server, the following methods, which are called when the session is destroyed, will not be executed:

- javax.servlet.http.HttpSessionListener#sessionDestroyed(javax.servlet.http.HttpSessionEvent)
- javax.servlet.http.HttpSessionAttributeListener#attributeRemoved(javax.servlet.http.HttpSessionBindingEvent)
- javax.servlet.http.HttpSessionBindingListener#valueUnbound(javax.servlet.http.HttpSessionBindingEvent)

If it is necessary to execute the above processes, by specifying the parameters shown below as the IJServer cluster JVM options, the expired sessions that exist only on the session registry server will be sent to the IJServer cluster that is still alive, and it will be possible to execute processes that destroy sessions on the IJServer cluster.

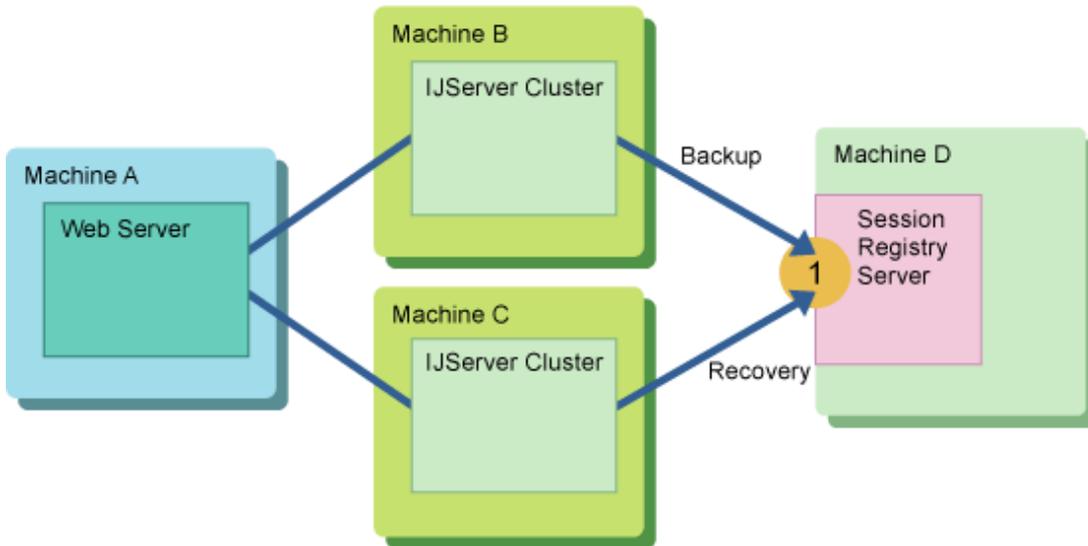
- -Dcom.fujitsu.interstage.jservlet.sessionrecovery.invalid.session.send
- -Dcom.fujitsu.interstage.jservlet.sessionrecovery.invalid.session.waiting.time

For details, refer to "[3. Session Registry Server Environment Settings](#)".

2.6.1.11 Controlling Access to the Session Registry Server

In the session registry server, specify the IP address (of Machine D in the figure below) and port number that are used to receive backup and recovery request communications from the web container. At this time, by specifying the IP address of the partners (web containers)

that allow communication (the IP addresses of Machines B and C in the figure below), it is possible to control access using the IP address, so that illegal communication from IP addresses except the one that was specified is not received.



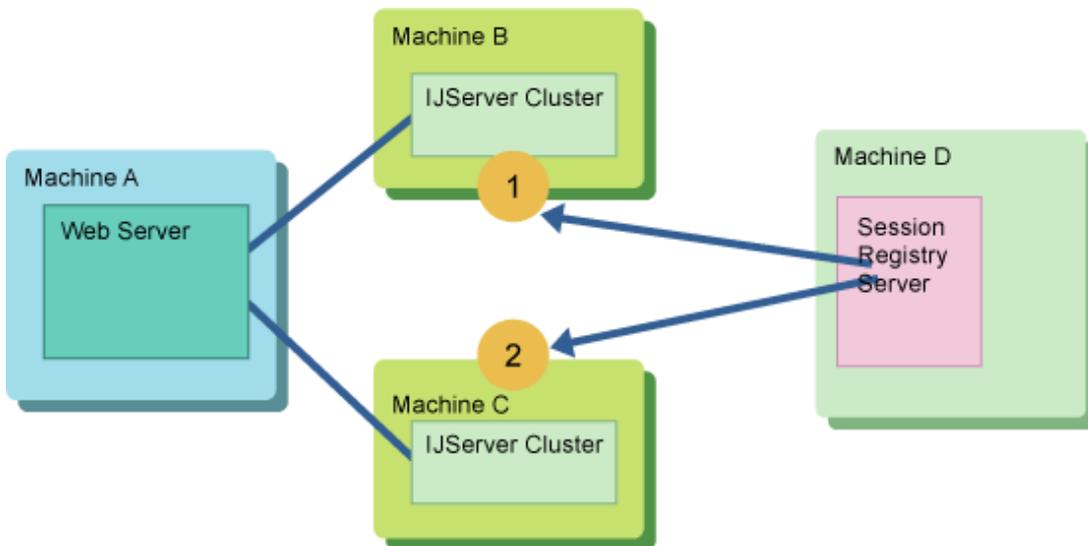
For details on the session registry server settings, refer to "4.10.2 Session Registry Server Settings". Additionally, for details on the settings method, refer to "HTTP Service Definition Items".

2.6.1.12 Controlling Access to the Session Registry Client

To use session recovery, the ports for control (1 and 2 in the figure below) must be set in the session registry client IJSERVER cluster.

The port for control is used to process requests from the session registry server.

Additionally, by specifying the IP address of the partner (in session recovery this is the session registry server) that allows communication (the IP address of Machine D in the figure), it is possible to control access using the IP address, so that illegal communication from IP addresses except the one that was specified is not received.



For details on the session registry client settings, refer to "4.10.3 Session Registry Client Settings" in the "Java EE Application Operation" chapter.

2.6.2 Session Recovery Scope

The scope of the session information that can be recovered when an error has occurred is explained below.

Session Recovery Scope when the Web Container Ends Abnormally

Even if the web container has ended abnormally, the session can be recovered using a web container that is still running, if that session has been backed up in the session registry server.

Accordingly, whether or not the session has been backed up in the session registry server is an important point as far as the extent of what can be recovered is concerned.

The trigger for the backup is set in the session registry client lifecycle module property (backupMode).

For details on the session registry client settings, refer to ["4.10.3 Session Registry Client Settings"](#) in the "Java EE Application Operation" chapter.



Example

Examples are shown below.

- When the backup trigger is set to "request" (when the request ends)

The backup is performed each time a response is returned to the web browser.

For this reason, recovery can even be performed following an abend immediately after the response was returned to the web browser.

- When the backup trigger is set to "interval" (fixed interval) and the backup interval is set to 5

The session information is backed up every 5 seconds. If the IJServer cluster has ended abnormally, the session information that was backed up last can be recovered.

Session Recovery Scope when the Session Registry Server Ends Abnormally

Even if the session registry server has ended abnormally, if the data that was stored in the session has been serialized in a file, that session can be recovered from the serialized file when the session registry server is restarted.

Accordingly, whether or not the session has been serialized in the session registry server is an important point as far as the extent of what can be recovered is concerned.

The serialization interval is specified in the "_Dcom.fujitsu.interstage.jservlet.sessionrecovery.serialize.interval" JVM option of the IJServer cluster. For details, refer to ["3. Session Registry Server Environment Settings"](#) in the "Java EE Application Operation" chapter.



Example

An example is shown below.

- When "-Dcom.fujitsu.interstage.jservlet.sessionrecovery.serialize.interval" is set to 60

The session information is written out (serialized) to the file every 60 seconds.

This will vary according to the serialization timing, however sessions that were active up to 60 seconds before the abend occurred are not recovered.

Sessions that were backed up in the session registry server up to 60 seconds before the abend occurred are recovered.

Serialization

By performing serialization, response time will deteriorate, though reliability will improve.

The enabling/disabling of serialization is specified in the "_Dcom.fujitsu.interstage.jservlet.sessionrecovery.session.store" JVM option of the IJServer cluster. For details, refer to ["3. Session Registry Server Environment Settings"](#) in the "Java EE Application Operation" chapter.

The differences in the behavior are explained below.

- When this value was set to "on"

The session registry server serializes the session information periodically.

If the session registry server has crashed because of an unexpected fault, the session state at the point of the final serialization before the crash can be restored from the serialized information.

The session registry server serializes the session information at the "_Dcom.fujitsu.interstage.jservlet.sessionrecovery.serialize.interval" interval in the "_Dcom.fujitsu.interstage.jservlet.sessionrecovery.serialize.file.path" directory. These are JVM options of the IJServer cluster.

- When this value was set to "off"

The session registry server does not serialize the session information.

Accordingly, if the session registry server has crashed because of an unexpected fault, the session data cannot be restored.

2.7 HTTP Service

This provides features that process requests that were made using HTTP communication.

In HTTP Service, the settings for the port that will communicate between the web container and the client, and for the number of threads for the processing of requests, are configured.

To configure the HTTP Service related settings, use the Interstage Java EE Admin Console or the `asadmin` command.

In this section, the following HTTP service features are explained:

- [HTTP Listener](#)
- [HTTP Access Log](#)
- [HTTP Trace Log](#)

2.7.1 HTTP Listener

HTTP Listener performs the role of receiving requests from the client, then forwarding the received requests to a virtual server.

HTTP Listener must have a unique port number and IP address combination. For details on the definition items, refer to "Definition Items of the configs" in the "Java EE Operation Commands" chapter.

2.7.2 HTTP Access Log

If the HTTP access log is enabled, log information for access from the client to the web container will be output. Parsing the log information that was output will greatly assist investigations into causes of problems that have occurred and security monitoring on the operations side.

For details on the HTTP access log, refer to "HTTP Access Log" in the "Java EE Application Operation" chapter.

2.7.3 HTTP Trace Log

If the trace log feature is enabled, the processing status in the web container for requests from the client will be output to a log file. By parsing the log information that was output, this log can be used in investigations into causes of problems when they occur.

For details on the HTTP trace log, refer to "HTTP Trace Logs" in the "Java EE Application Operation" chapter.

2.8 Functionality Provided in EJB

This section describes functionality provided in EJB.

Types of EJB Applications

An EJB application is of one of the following types.

Session Bean

This is an object that is used to realize conversational processing with the client. Generally, business logic is used. For details, refer to "[2.8.1 Session Bean Runtime Environment](#)".

Message-driven Bean

This is an object that is used to receive and process messages. The container receives messages from JMS or a connector and maps them to the Message-driven Bean instance which realizes the business logic. For details, refer to "[2.8.2 Message-driven Bean Runtime Environment](#)".

Functionality Provided in the EJB Container

This product provides the following functionality.

Session Bean runtime environment

For details, refer to "[2.8.1 Session Bean Runtime Environment](#)".

Message-driven Bean runtime environment

For details, refer to "[2.8.2 Message-driven Bean Runtime Environment](#)".

Java Persistence API

Java Persistence API is provided to manage business data in a relational database. It is recommended that Java Persistence API is used instead of the EJB 2.1 or earlier Entity Bean. For details about Java Persistence API, refer to "[2.11 Functionality Provided in JPA](#)".

Time monitoring functionality

For details, refer to "[2.9 Time Monitoring Functionality that can be Used in the EJB Container](#)".

For details on tuning using the EJB container functionality, refer to "EJB Container Tuning" in the "Java EE Function Tuning" chapter.

2.8.1 Session Bean Runtime Environment

A Session Bean is an EJB application that is used to realize business logic on the server. RMI-IIOP or SOAP can be used for the communication with the client, so the developer can call the Session Bean from a client without implementing communication processing. Additionally, transaction processing and security processing can be delegated to the EJB container so that the developer can concentrate on the development of the business logic.

There are two state types for the Session Bean, depending on whether the state can be retained or not. The characteristics of each are explained below.

Stateless Session Bean

The transaction state and application variables cannot be retained in the instance during the conversation with the client. The Stateless Session Bean instance is managed in the pool, so available instances are reused each time they are called by the client. For this reason, memory usage can be reduced. For details on pooling, refer to "Enterprise Bean Instance Pooling" in the "Java EE Function Tuning" chapter.

A Stateless Session Bean can also be published as a web service endpoint.

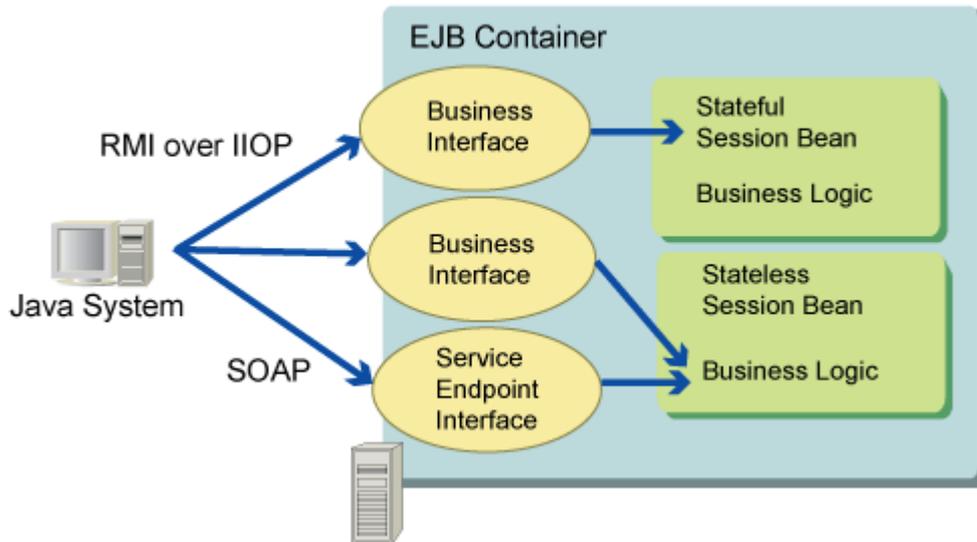
By publishing this as a web service endpoint, SOAP can be used to call the instances, and, because HTTP is used as the communication protocol, environment setup for a system with communication across a firewall is simple.

Stateful Session Bean

The transaction state and application variables can be retained in the instance during the conversation with the client. The Stateless Session Bean instance that was created is managed in a cache. If the instance is called by the same client, the EJB container retrieves the same instance that was called and cached previously, therefore the previous state can be retained in the instance variables. For details on the cache, refer to "Enterprise Bean Instance Caching" in the "Java EE Function Tuning" chapter.

Either remove the cached instance by executing a Remove request, or, if no business methods are executed for a certain period, the relevant instance is removed by the container automatically using the "[Non-communication Time Monitoring Functionality for the Stateful Session Bean Instance](#)".

The Session Bean structure is shown below.



To issue a request from the EJB client to the business interface of the EJB application, so that the EJB client can reference classes, such as the business interface of the EJB application, either package the classes with the EJB client or add them to the class path of the common IJServer cluster class loader or the application client container.

A web service client application is used to issue requests to the web service endpoint of a Stateless Session Bean. For details, refer to "Procedure when the Web Service Client is Used" in the "Java EE Application Operation" chapter.

The interface that is used by the Session Bean depends on the EJB specification. In the EJB3.0 specification, the business interface is used. In the specification for EJB2.1 or earlier, the Home interface /LocalHome interface and Remote interface /Local interface are used. Home interface /LocalHome interface can also be used in EJB3.0 for backward compatibility, however, there is no need to use it. For details on differences in the interfaces, refer to the EJB specification.

2.8.2 Message-driven Bean Runtime Environment

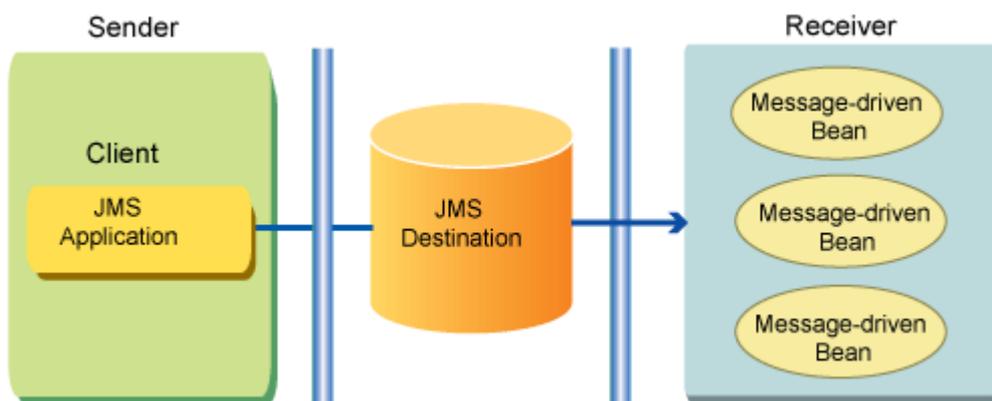
The Message-driven Bean is an EJB application that receives and processes JMS messages or resource adapter messages.

When a message reaches the destination of a Message-driven bean, the EJB container calls a Message-driven Bean instance, which handles the business logic.

Messages are processed using a message listener method (in JMS, this is the onMessage method) that is implemented by the Message-driven Bean. The Message-driven Bean either calls the Session Bean or Java Persistence API, or calls database operation commands (using a JDBC driver) provided by the DBMS directly to process the database.

The Message-driven Bean instance is managed in a pool. For details on pooling, refer to "Enterprise Bean Instance Pooling" in the "Java EE Function Tuning" chapter.

The Message-driven Bean structure is shown below. In the figure below, messages are received from JMS.



Either JMS or a resource adapter can be selected as the source of the messages that the Message-driven Bean will receive.

Receiving Messages from JMS

To receive messages from JMS, the following must be created and defined for the Message-driven Bean.

- JMS connection factory
- JMS destination

The procedure to specify each is explained below.

Specifying the JMS Connection Factory

A JMS connection factory is required to access the JMS provider. The JMS connection factory connection pool can be tuned by specifying a JMS connection factory for the Message-driven Bean. If the JMS connection factory is not specified, a JMS connection factory with default values for the connection pool tuning settings is used internally.

To specify the target JMS connection factory for the Message-driven Bean, the JMS connection factory JNDI name is specified in the <ejb><mdb-connection-factory> tag of the Interstage EJB application deployment descriptor (sun-ejb-jar.xml) file. For details on the definition, refer to "Interstage EJB Application deployment Descriptor (sun-ejb-jar.xml)" in the "Java EE Application Development" chapter. For details on the procedure to create the JMS connection factory and the tuning functionality, refer to "Preparation for sending/receiving JMS Messages" in the "Java EE Application Operation" chapter.

Specifying JMS Destination Resource

The JNDI name of the JMS destination resource used by the Message-driven Bean is specified.

For details on creating JMS destination resources, refer to "Preparation for sending/receiving JMS Messages" in the "Java EE Application Operation" chapter.

The location of the JMS destination that is used by the Message-driven Bean that is specified is shown in the table below.

Definition priority	Specified location	Usage pattern
1	<jndi-name> in <ejb> in the sun-ejb-jar.xml file	When EJB 2.1 or earlier EJB applications are used, or when wanting to overwrite the definitions below without modifying them directly.
2	<mapped-name> in <message-driven-bean> in the <ejb-jar.xml file>	When EJB 3.0 EJB applications are used and annotations are not used, or when wanting to overwrite the annotations.
3	The mappedName attribute in @MessageDriven in the source	When developing an EJB3.0 application with annotations and the JNDI name in the operating environment is known beforehand.

Specifying the Subscriber Identifier

When the Message-driven Bean is the Publish/Subscribe model, **subscriber persistence** can be specified in the <message-driven><subscription-durability> tag of the deployment descriptor (ejb-jar.xml) file. For details on subscriber persistence, refer to the EJB specifications.

To specify "Durable" for subscriber persistence, specify **subscriber identifier** in the <ejb><jms-durable-subscription-name> tag of the Interstage EJB application deployment descriptor (sun-ejb-jar.xml) file. For details on definitions, refer to "Interstage EJB application deployment descriptor (sun-ejb-jar.xml)" in the "Java EE Application Development" chapter.



Notes on Running an IJServer Cluster using a Multiple Process Configuration

When the IJServer cluster is run using a multiple process configuration, Message-driven Bean receives messages using multiple sessions, and hence multiple messages are processed concurrently, and the message order cannot be guaranteed.

In the Publish/Subscribe model, an identical message is delivered to multiple recipients. When the IJServer cluster is run using a multiple process configuration, messages from Topic are only sent to Message-driven Bean that runs using one process.

Notes on Specifying "Durable" for the Subscribers Persistence

If "Durable" is specified for the Subscribers persistence, then the durable subscription will be registered using the name set for "Subscribers DN" when the Message-driven Bean first starts up. If the durable subscription is no longer necessary, then delete it using the `imqcmd destroy dur` command.

Notes on Specifying JMS Destination Resource

If the physical storage destination that was set in the JMS send destination resource used by the Message-driven Bean does not exist in the message broker, the physical storage destination is created when the Message-driven Bean starts.

In order to control the physical storage destination, when performing this operation it is recommended that you create the physical storage destination using the `imqcmd` command. This should be done before starting the Message-driven Bean. For details on this command, refer to "imqcmd", "Subcommands", "create dst" in the "Java EE Operation Commands" chapter.

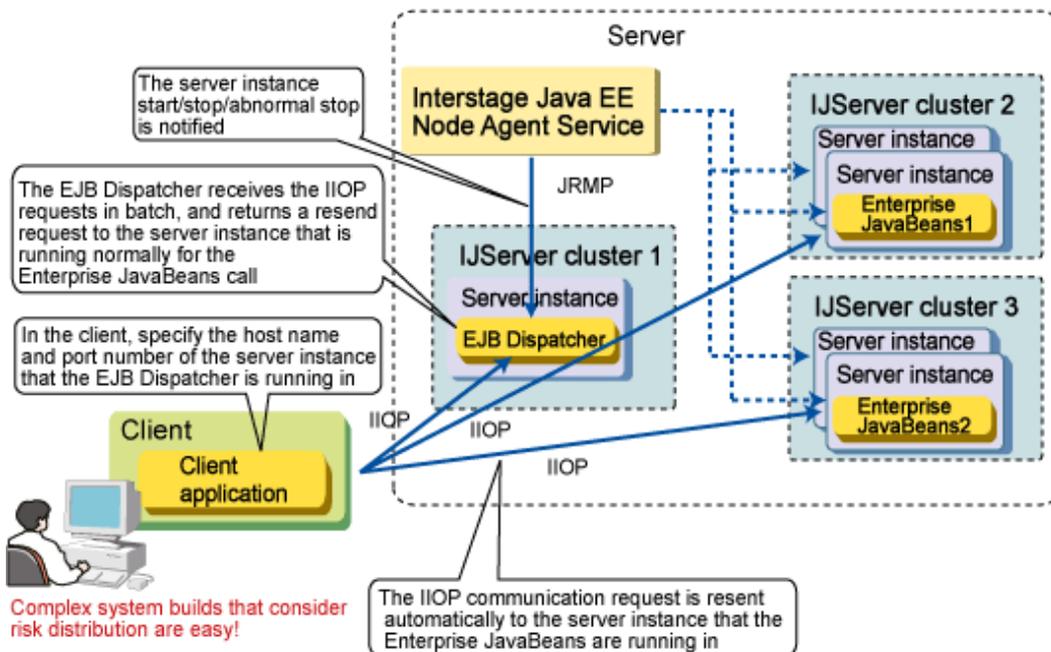
Receiving Messages from the Resource Adapter

To receive messages from a resource adapter, the resource adapter name that is to be used is specified in the `<resource-adapter-mid>` tag of the Interstage EJB application deployment descriptor (`sun-ejb-jar.xml`). If the `<resource-adapter-mid>` tag is not specified, or an empty string or "jmsra" has been specified, JMS is selected as the target for receiving messages. For details on resource adapter names, refer to "Deploying the Connector Module and Creation of Resource Definitions" in the "Java EE Application Operation" chapter. For details on the definition, refer to "Interstage EJB Application Deployment descriptor (`sun-ejb-jar.xml`)" in the "Java Application Development" chapter.

For details on the tuning functionality, multiple process operations, and points that should be noted on their use, refer to the manual of the resource adapter provider.

2.8.3 Load Balancing Using the EJB Dispatcher Feature

The EJB Dispatcher feature is provided as the IIOP communication load balancing feature. Compared with the existing Group Management Service (GMS), flexible extension and configuration updates are possible even with a large variety of system configurations. Load balancing using GMS is not recommended.



In the EJB Dispatcher feature, the "EJB Dispatcher" refers to the receiving of requests using IIOP communication and their dispatch to a suitable server instance.

In load balancing using the EJB Dispatcher feature, unlike the business server instances, server instances that run the EJB Dispatcher are provided. The client sends the IIOP communication request to the EJB Dispatcher. The EJB Dispatcher that receives the IIOP

communication request dispatches the request to the dispatch target server instance. The EJB Dispatcher can dispatch multiple IJServer clusters to the dispatch target. For this reason, if the client is aware of only the EJB Dispatcher endpoint (host name and IIOP listener port), there is no need for the EJB Dispatcher to be aware of how the IJServer cluster/server instance recognized as the dispatch target was deployed to the server.

In the existing load balancing that uses the GMS, before the request is sent (when the InitialContext object is generated) using IIOP communication, the list information for the server instances that are active is obtained from the GMS of the business server instance, and it is determined from that list information which server instance will send the request using IIOP communication. However, since the application and the GMS run on the same server instance, the GMS server instance that is contacted may have stopped because of an application error, so the caller needs to be aware of the status of each server instance.

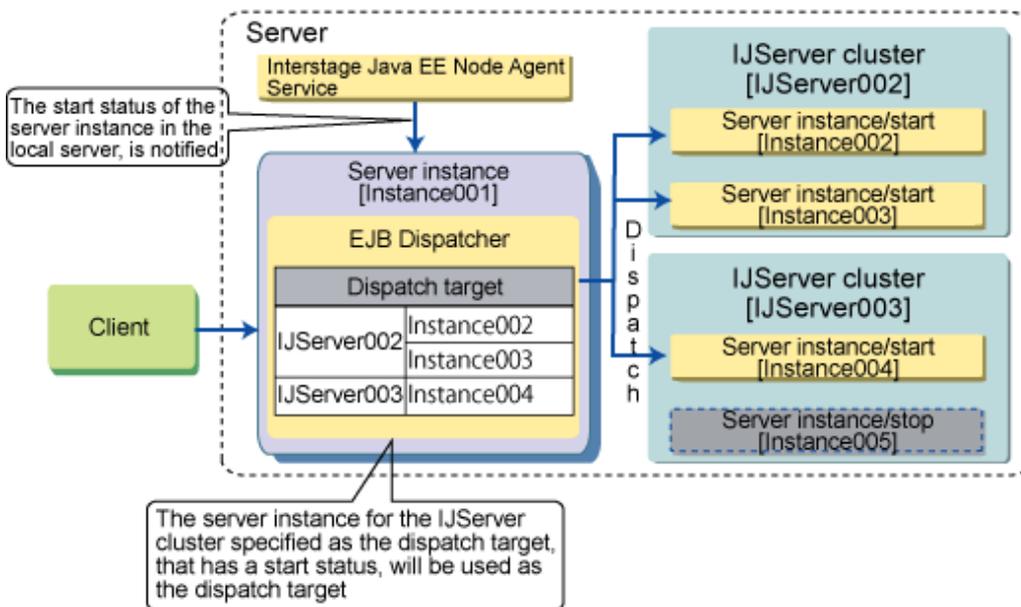
A comparison of load balancing when the GMS is used and when the EJB Dispatch feature is used is shown below. Additionally, compared to when the GMS is used, the processing performance also improves when the EJB Dispatcher is used.

Item	When the GMS is used	When the EJB Dispatcher is used
When an application that is running on different IJServer clusters is called	This cannot be called. Multiple IJServer cluster EJB applications cannot be called from the client application. If these are called, it will be necessary to change the specified endpoint, then restart the client application.	This can be called. Since the EJB Dispatcher will dispatch requests that were received in multiple IJServer clusters in batch, EJB applications running in multiple IJServer clusters can be called.
When the endpoint is specified in the client	Specify the host name and IIOP listener port number of the server instance that runs the EJB application. The server instance may have stopped because of an application error or maintenance, therefore it is recommended that multiple endpoints (as many as there are server instances that have been created) be specified.	Specify the host name and IIOP listener port number of the server instance that runs the EJB Dispatcher. If the application is not run using a server instance that runs the EJB Dispatcher, it is OK to specify only one endpoint by running the server instance on a full-time basis.
How the business server instance is monitored	Each business server instance sends a heartbeat signal to the multicast periodically, and the GMS monitors whether the business server instance is running normally.	The Interstage Java EE Node Agent Service that performs the business server instance start/stop control notifies which business server instances are running normally to the EJB Dispatcher.
IIOP communication load balancing through IPCOM linkage	Only Stateless Session Bean IPCOM linkage can be used.	Stateful Session Bean and Stateless Session Bean IPCOM linkage can both be used.

2.8.3.1 Adding/deleting Dispatch Target Enterprise JavaBeans

By linking with the Interstage Java EE Node Agent service, server instances that are running are automatically dispatch targets, and server instances that are not running are automatically excluded from being dispatch targets.

Additionally, if a dispatch target was added/deleted after the EJB Dispatcher was started, the IJServer cluster server instance will be reflected as a dispatch target at the point when the dispatch target is added/deleted.



Note

- It may take a few seconds (several tens of seconds if the server is in a high-load state) from the point when the Interstage Java EE Node Agent Service checks whether the server instance has started/stopped until the server instance is added or excluded as a dispatch target.
- After the EJB Dispatcher is started, do not perform the operations shown below for the dispatch target IJServer cluster. A server instance for which the operations shown below are performed may not be reflected correctly as an EJB Dispatcher dispatch target. If the server instance was not reflected correctly, either remove the IJServer cluster for which the operation was performed as an EJB Dispatcher dispatch target, then add it back again, or restart the EJB Dispatcher IJServer cluster.
 - Adding/deleting the server instance to/from the IJServer cluster
 - Changing the IIOP listener definition for the IJServer cluster server instance
- Even if the IJServer cluster that was added as the dispatch target was deleted using the Interstage Java EE Admin Console or the asadmin command delete-cluster subcommand, the dispatch target definition will remain. If necessary, delete the dispatch target together with the IJServer cluster.

2.8.3.2 Dispatch Target Enterprise JavaBeans

When the server instance is recognized as a dispatch target, the Enterprise JavaBeans that are already enabled (active) in that server instance will be EJB Dispatcher dispatch targets. If the operations shown below are performed for a server instance that is already running and also a dispatch target, an error will occur. For this reason, during development so that deployment/undeployment is performed for a server instance that is already running, do not use the load balancing feature that uses the EJB dispatch feature.

- Deployment after adding Enterprise JavaBeans (including when application deployment equivalent to deployment unpacking, or the activity state of the application is enabled)

The server instance will not be an EJB Dispatcher dispatching target. If the Enterprise JavaBeans that were additionally deployed by the caller are called, the OBJ_ADAPTER exception that indicates that there is no dispatch target will be returned.

- When Enterprise JavaBeans are redeployed

As when the Enterprise JavaBeans are additionally deployed, the Enterprise JavaBeans will not be EJB Dispatcher dispatch targets. If the Enterprise JavaBeans that were redeployed by the caller are called, the OBJ_ADAPTER exception that indicates that there is no dispatch target will be returned.

- When Enterprise JavaBeans are undeployed (including when application undeployment equivalent to cancel unpacking, or the activity state of the application is disabled)

The server instance will not be excluded as an EJB Dispatcher dispatching target. If the Enterprise JavaBeans that were undeployed by the caller are called, the request will be dispatched to the dispatch target server instance, however the `OBJECT_NOT_EXIST` exception that indicates that the target Enterprise JavaBeans do not exist will be returned.

As with the above, there are methods that can be used to enable the changes that were made to a dispatch target server instance that is already running so that they are reflected in the EJB Dispatcher. These methods are shown below.

- Using the `asadmin` command `disable-ejb-dispatch-target` subcommand, first disable the server instance as a dispatch target, then enable it again using the `enable-ejb-dispatch-target` subcommand.
- Restart the server instance that the EJB Dispatcher is running on.
- Restart the server instance that is running the Enterprise JavaBeans.

Additionally, the Enterprise JavaBeans that are called using IIOP communication will be EJB Dispatcher dispatch targets. Message-driven Beans that are called without using IIOP communication and other Enterprise JavaBeans will not be dispatch targets.



Note

The following Enterprise JavaBeans call is not an EJB Dispatcher dispatch target:

- Java EE Management Specification MEJB

2.8.3.3 Dispatch Operations using Commands, and Status Display

Using the commands shown below, it is possible to display the EJB Dispatcher request dispatch control status (Dispatch/Do not dispatch), or the current request dispatch control status.

For example, exclude the server instance as a dispatch target at times of EJB application scheduled maintenance, network problems, or machine problems, then restore it as a dispatch target after the maintenance is complete or the problem has been addressed.

Using this operation, stable and continuous system operations are possible.

- Dispatch operation command (`disable-ejb-dispatch-target/enable-ejb-dispatch-target`)

Specify the Dispatch/Do not dispatch request operation and the server instance name.

The status that results from using the dispatch operation command will be retained after the EJB Dispatcher is restarted and also after an abnormal stop. To change the dispatch status, execute the dispatch operation command again.

- Dispatch status display command (`list-ejb-dispatch-targets`)

The dispatch status in the server instance is displayed.

2.8.3.4 EJB Dispatcher Logs

So that EJB dispatch feature users can check whether the dispatch was controlled as intended, a feature is provided that outputs EJB Dispatcher dispatch control information to a log.

The log is output to the server log as a message.

Log Settings

The EJB Dispatcher log can be enabled using the Interstage Java EE Admin Console or the `asadmin` command.

- Interstage Java EE Admin Console

In [Clusters] > [cluster name] > "IIOP Loadbalance" window > EJB Dispatcher Settings, select the [Request Dispatch log] "Enabled" check box or the [Dispatch Target log] "Enabled" check.

- The `asadmin` command `set` subcommand

Change the "Request dispatch information log" or "Dispatch target information log" Definition Item settings for the relevant cluster.

For details, refer to the Interstage Java EE Admin Console Help, or "Definition Items that can be Executed by the asadmin Command", "Definition Items of the Clusters" in the "Java EE Operation Commands" chapter.

Log Output Destination

This is output to the server log file (server.log).

Output Information

The following information is output:

Output Information	Content
Request dispatch information log	When this setting is enabled, the EJB Dispatcher will output information to a log showing which target the request has been dispatched to.
Dispatch target information log	When this setting is enabled, information about the EJB Dispatcher dispatch target server instance will be output to a log.

Output Format

The following information is output:

1) Request dispatch information log

[Output Format]

- When an IOP communication request is received
INFO: ISJEE_EJBD0006: REQUEST ACCEPT "request ID" "remote host name" "type" "interface information" "operation name" "application ID information"
- When an IOP communication request is dispatched as a dispatch target
INFO: ISJEE_EJBD0007: REQUEST DISPATCH "request ID" "remote host name" "server instance name" "type" "interface information" "operation name" "application ID information"

[Variable Information]

Output Item	Content
Request ID	A unique ID that identifies the IOP communication request is output.
Remote host name	The host name or IP address of the client that is connected to the EJB Dispatcher is output. If a request was received in the same server instance, "-" will be output.
Server instance name	The name of the dispatch target server instance is output. This is not output if the operation name is ACCEPT.
Type	One of the following will be output: <ul style="list-style-type: none"> - EJB This is a request for the EJB application. - SERVICE This is a request for the various services, and not the EJB application.
Interface information	If the type is "EJB", the interface information will be output in the formats shown below. If the type is "SERVICE", ignore this since internal interface information will be output. EJB2.1 or earlier format RMI:Home interface package name.Home interface name: 0000000000000000

Output Item	Content
	<p>EJB3.0 format (*1)</p> <p>RMI:com.sun.ejb.codegen.GenericEJBHome_Generated: 0000000000000000</p> <p>*1 For EJB3.0 format Enterprise JavaBeans, in which there is no Home interface, "com.sun.ejb.codegen.GenericEJBHome_Generated" will always be output as the Home interface name.</p>
Operation name	The name of the called operation is output.
Application ID information	Internal information that identifies the application as unique is output.

2) Dispatch Target Information Log

[Output Format]

- When a dispatch target is added
INFO: ISJEE_EJBD0008: TARGET ADDED "server instance name" "interface information" "application ID information"
- When a dispatch target is deleted
INFO: ISJEE_EJBD0009: TARGET DELETED "server instance name"
- When a dispatch target is registered again as a result of the user operation
INFO: ISJEE_EJBD0010: TARGET ENABLED "server instance name" "interface information" "application ID information"
- When a dispatch target is excluded as a dispatch target as a result of the user operation
INFO: ISJEE_EJBD0011: TARGET DISABLED "server instance name"

[Variable Information]

Output Item	Content
Server instance name	The name of the dispatch target server instance is output.
Interface information	<p>This is output when the operation name is "ADDED" or "ENABLED".</p> <p>This dispatch target EJB application interface information is output. This is output in the following formats.</p> <p>When an EJB2.1 or earlier format Home interface is used RMI:Home interface package name.Home interface name: 0000000000000000</p> <p>When an EJB2.1 or earlier format Remote interface is used RMI:Remote interface package name.Remote interface name: 0000000000000000</p> <p>When an EJB3.0 format Home interface is used (*1) RMI:com.sun.ejb.codegen.GenericEJBHome_Generated: 0000000000000000</p> <p>When an EJB3.0 format Business interface is used RMI:Business interface package name.Business interface name_Remote: 0000000000000000</p> <p>Example) When the EJB3.0 format Business interface is "com.fujitsu.manager.EmployeeRemote" RMI:com.fujitsu.manager._EmployeeRemote_Remote:0000000000000000</p>

Output Item	Content
	*1: For EJB3.0 format Enterprise JavaBeans, in which there is no Home interface, "com.sun.ejb.codegen.GenericEJBHome_Generated" will always be output as the Home interface name.
Application ID information	This is output when the operation name is "ADDED" or "ENABLED". Internal information that identifies the application as unique is output.

Output Example

```
[08/06/2011 14:44:11.250 +0900] ISJEE: INFO: ISJEE_EJBD0008: TARGET ADDED "targetInstance1"
"RMI:com.fujitsu.test.ejb21.remote.FrontStatelessHome:0000000000000000" "85689139321831425_RHome-EJBHome":
ThreadID=25,ThreadName=RMI TCP Connection(120)-10.10.10.11
[08/06/2011 14:44:11.250 +0900] ISJEE: INFO: ISJEE_EJBD0008: TARGET ADDED "targetInstance1"
"RMI:com.fujitsu.test.ejb21.remote.FrontStatelessRemote:0000000000000000" "85689139321831425_RHome-EJBObject":
ThreadID=25,ThreadName=RMI TCP Connection(120)-10.10.10.11
[08/06/2011 14:35:15.218 +0900] ISJEE: INFO: ISJEE_EJBD0006: REQUEST ACCEPT "59" "10.10.10.11" "EJB"
"RMI:com.fujitsu.test.ejb21.remote.FrontStatelessHome:0000000000000000" "create" "RootPOA/
#INTERNAL#ReferenceFactoryManagerBase#INTERNAL#/85689139321831425_RHome-EJBHome": ThreadID=23,ThreadName=p:
thread-pool-1; w: 16
[08/06/2011 14:35:15.218 +0900] ISJEE: INFO: ISJEE_EJBD0007: REQUEST DISPATCH "59" "10.10.10.11" "targetInstance1" "EJB"
"RMI:com.fujitsu.test.ejb21.remote.FrontStatelessHome:0000000000000000" "create" "85689139321831425_RHome-EJBHome":
ThreadID=23,ThreadName=p: thread-pool-1; w: 16
[08/06/2011 14:38:17.187 +0900] ISJEE: INFO: ISJEE_EJBD0011: TARGET DISABLED "targetInstance1":
ThreadID=24,ThreadName=RMI TCP Connection(101)-10.10.10.11
[08/06/2011 14:38:30.953 +0900] ISJEE: INFO: ISJEE_EJBD0010: TARGET ENABLED "targetInstance1"
"RMI:com.fujitsu.test.ejb21.remote.FrontStatelessHome:0000000000000000" "85689139321831425_RHome-EJBHome":
ThreadID=24,ThreadName=RMI TCP Connection(101)-10.10.10.11
[08/06/2011 14:38:30.953 +0900] ISJEE: INFO: ISJEE_EJBD0010: TARGET ENABLED "targetInstance1"
"RMI:com.fujitsu.test.ejb21.remote.FrontStatelessRemote:0000000000000000" "85689139321831425_RHome-EJBObject":
ThreadID=24,ThreadName=RMI TCP Connection(101)-10.10.10.11
[08/06/2011 14:43:57.250 +0900] ISJEE: INFO: ISJEE_EJBD0009: TARGET DELETED "targetInstance1": ThreadID=25,ThreadName=RMI
TCP Connection(120)-10.10.10.11
```

2.9 Time Monitoring Functionality that can be Used in the EJB Container

The following time monitoring functionality can be used In the EJB container.

- Wait time monitoring functionality for IIOP connection
- Recovery time monitoring functionality from the server at the time of IIOP communication
- Wait time monitoring functionality for sending/receiving the IIOP communication socket
- IIOP communication client non-communication monitoring feature
- Maximum processing time monitoring functionality for the application
- Non-communication Time Monitoring Functionality for the Stateful Session Bean Instance
- Transaction Completion Time Monitoring Functionality for the EJB Container
- Idle time monitoring functionality for pooled Bean instances
- Idle time monitoring functionality for pooled threads
- EJB Timer Service

Each type of functionality is outlined in the table below.

Functionality	Description of the functionality	Effect
Wait time monitoring functionality for IOP connection	This monitors the retry time of the connection processing from the client to the server using IOP communication. When the monitoring time is exceeded, an exception is returned to the client.	This can be used to detect errors such as the non-start of the JServer cluster, disconnection from the network, and incorrect connection server information.
Recovery time monitoring functionality from the server at the time of IOP communication	This monitors the time from when the request was sent successfully through IOP from the client to the server until the time that the request is returned from the server. If the request has not returned from the server after a certain time has elapsed, an exception is returned to the client to notify of the timeout.	This can be used to detect network errors after requests are sent, and server processing delays and hang-ups.
Wait time monitoring functionality for sending/receiving the IOP communication socket	If the data could not be received (sent) at one time while the request is being received (sent) from the client using IOP communication, or while the response is being received (sent) from the server, a read (write) retry is performed. If the data still cannot be received (sent), an exception is returned to the client.	Network errors during the reading (writing) of the message and processing delays can be detected and processing interrupted.
IOP communication client non-communication monitoring feature	This monitors non-communication states from the client to the server. If the monitoring time is exceeded, it will close/reopen the connection with the server the next time a request is sent.	If the connection is broken by the server, a communication error can be avoided by the creation of a new connection in the client.
Maximum processing time monitoring functionality for the application	This monitors the method processing time (server processing time) of the EJB application. If the method does not complete after a certain time has elapsed, a message that notifies of the error is output to the event log/system log.	The system administrator can detect EJB application processing delays and hang-ups.
Non-communication time monitoring functionality for the Stateful Session Bean instance	If a business method for the Stateful Session Bean is not executed after a certain time has elapsed, the container saves ("passivate") the conversational state held by the instance in the file and deletes the instance. After a certain time has elapsed, the passivated Bean is removed from the file system.	The conversational state of Bean instances that are no longer necessary but for which the client has not issued a Remove request are removed, therefore memory can be optimized.
Transaction completion time monitoring functionality for the EJB container	This monitors the time for an EJB container managed transaction to complete. If the transaction does not complete within a certain period, the transaction marked for rollback.	This can be used to detect hang-ups and processing delays during the transaction.
Idle time monitoring functionality for pooled Bean instances	This monitors the time that the pooled Bean instance is not used (idle state). If the Bean instance in the pool is not used for a certain period, the transaction status is changed to "MarkedRollback" (*1).	Memory can be optimized by destroying unnecessary instances.
Idle time monitoring functionality for pooled threads	This monitors the time when the pooled thread is unused (idle state). If the thread in the pool is not used for a certain period, the thread is removed.	Memory and resources can be optimized by destroying unnecessary threads.
EJB timer service	An EJB timer can be registered in the EJB application to execute callback processing at any time.	This can be used to monitor any target.

*1) For details on the transaction status, refer to "2.15.6 Transaction Monitoring and Freeze Functionality".

Settings for each Time Monitoring Function

This section explains the settings for each time monitoring function.

For details on the maximum processing time monitoring functionality for the application, refer to ["2.4.7 Monitoring the Maximum Processing Time for Application and Response Monitoring"](#).

The EJB timer service is different to other time monitoring functions in that the timer is created by the EJB application. For details on the EJB timer service, refer to ["2.9.3 EJB Timer Service"](#)

For details on the idle time monitoring functionality for pooled Bean instances and pooled threads, refer to "Enterprise Bean Instance Pooling" and "Thread Pooling" in the "Java EE Function Tuning" chapter.

For details on the wait time monitoring functionality for IOP connection, the recovery time monitoring functionality from the server method during IOP communication, the wait time monitoring functionality for sending/receiving the IOP communication socket, and the non-communication monitoring functionality for IOP communication client, refer to ["2.27 Time Monitoring Features that can be Used in IOP Communication"](#).

2.9.1 Non-communication Time Monitoring Functionality for the Stateful Session Bean Instance

The non-communication time monitoring functionality for the Stateful Session Bean instance is a type of functionality in which the container removes an instance from the memory when the business method for that Stateful Session Bean instance is not executed after a certain time has elapsed.

With this functionality, Bean instances that have not been used for a long period of time and are no longer necessary are removed, therefore the memory can be optimized. The processing for this feature will be different, depending on whether "none" or "file" is set for "SFSB Persistence Type". The default setting is "none".

When "SFSB Persistence Type" is "none"

Bean instances for which the business method has not been executed even if the fixed time set for the cache idle timeout is exceeded, are deleted from the memory. If a request is issued for the deleted Bean, the exception defined in the EJB specifications is notified to the client. Obtain a new Stateful Session Bean reference from JNDI and create the interaction again.

When "SFSB Persistence Type" is "file"

There are two phases, as shown below.

1. Save ("passivate") the Bean instance conversational state in the file system temporarily.

Bean instances for which the business method has not been executed even if the fixed time set for the cache idle timeout is exceeded are passivated in the file system and then deleted from the memory. If a request is issued for the passivated Bean, the conversational state is read from the file system and the Bean is activated. No message is output when the container performs passivate and activate processing correctly.

2. Delete the saved conversational state from the file system

If the business method for the Bean was not executed after the fixed time set in the removal timeout was exceeded, the container will delete the corresponding instance or conversational state saved in the file system using passivate. If a request is issued for the removed Bean, the exception described in the EJB specification is notified to the client. In this case, obtain a new Stateful Session Bean reference from JNDI and correct the interaction.

Note

.....
The container automatically rolls back the transaction if the transaction management type is "Bean" and the transaction has started when the Bean instance is removed.
.....

See

.....
For details on the method that is used to set this monitoring functionality, refer to "EJB Container Definition Items", "Enterprise Bean Instance Caching" in the "List of Definition Items" chapter.

- Items related to passivated Bean instances:
 - Maximum cache size
 - Change in cache size
 - Cache Idle Timeout
 - Items related to the deletion of passivated Beans:
 - Delete timeout
 - Delete policy for selected contents
-

2.9.2 Transaction Completion Time Monitoring Functionality for the EJB Container

When the container manages EJB application transactions, the transaction time is monitored. The setting for functionality can be specified for each EJB application, and when specified, it overwrites the transaction service transaction timeout setting.

The wait time of this monitoring functionality is specified in the `<ejb><cmt-timeout-in-seconds>` tag in the Interstage EJB application deployment descriptor (`sun-ejb-jar.xml`) file. For details on the definition, refer to "Interstage EJB Application deployment descriptor (`sun-ejb-jar.xml`)" in the "Java EE Application Development" chapter.

If the transaction processing time exceeds the specified transaction timeout time, the EJB container changes the transaction status to "MarkedRollback" automatically. Transactions that are changed to MarkedRollback are rolled back automatically when the EJB application method processing is complete. For details on the transaction status, refer to "[2.15.6 Transaction Monitoring and Freeze Functionality](#)".

With this functionality, the transaction can safely be rolled back even if the call origin process is interrupted without waiting for the server return process when server transaction processing does not complete after a certain time has elapsed.

The `ISJEE_EJB5123` WARNING message is output to the server log. An error is not returned to the client.

2.9.3 EJB Timer Service

The following timers are created in the EJB timer service, and callback processing can be executed at any time from the EJB container.

- Callback after a certain time has elapsed
- Callback after a certain time has elapsed, and then regular callback thereafter
- Callback at the specified date and time
- Callback at the specified date and time, and then regular callback thereafter

This section explains the following:

- [Basic Functionality](#)
- [Timer Persistence](#)
- [Data Stored in the Table](#)
- [Settings of the Timer Service](#)
- [Accuracy of Timer and Operation when the Process is Delayed](#)
- [Notes on Running an IIServer Cluster using a Multiple Process Configuration](#)

Basic Functionality

Creating a timer

The timer is created by executing the `createTimer` method of the `javax.ejb.TimerService` interface. The execution time and interval are specified in the arguments of the `createTimer` method. The EJB timer service (`javax.ejb.TimerService` interface implementation) can be obtained as follows.

- Execute the getTimerService method of the EJB context passed by the EJB container.
- Assign the @Resource annotation to the javax.ejb.TimerService type field.

Cancelling a timer

To cancel a timer that has been created, execute the cancel method of the timer.

Executing the callback processing

The timer callback method of the Enterprise Bean is executed by the EJB timer service at the time specified when the timer was created. One of the following can be defined for the timer callback method.

- Define the @Timeout annotation in the method that will be called back.
- The Bean class must implement the javax.ejb.TimerObject interface and the ejbTimeout method.
- Define the timer callback method name in the timeout-method tag of the deployment descriptor (ejb-jar.xml) file.

Timer persistence

Timer persistence occurs in the database. To obtain the timer information from the database when the J2EE cluster starts up, the timer is recovered automatically when the J2EE cluster process restarts according to the following operations:

- When the process is restarted automatically following an J2EE cluster shutdown
- When the J2EE cluster is restarted

Timer Persistence

To use the timer, a database is required for persistence. Prepare the database to be used.

When the timer is created in the transaction, the registration of timer information is committed or rolled back according to the transaction status at the end of the transaction. For this reason, if other JDBC data source or JMS resources in the transaction that uses the timer are accessed, the data source (XADataSource) that supports global transactions must be used.

Performance overheads are incurred when global transactions are used. For this reason, it is recommended that the same data source is used for timer persistence for database access using the JDBC API or JPA in timer generation processing or callback processing.

The table provided in database is shown below. The table name is "EJB__TIMER__TBL".

Column name	JDBC data type	Length of data (max value)	Constraint
TIMERID	VARCHAR	46 + [Length of server instance name] + [Length of J2EE cluster name]	PRIMARY KEY
OWNERID	VARCHAR	[Length of server instance name]	NULL
CREATIONTIMERAW	BIGINT	19 digits (9223372036854775807) (In Symfoware, this will be 18 digits)	NOT NULL
BLOB	LONGVARBINARY	Depends on the binary size of the primary key and the information object	NULL
CONTAINERID	BIGINT	19 digits (9223372036854775807) (In Symfoware, this will be 18 digits)	NOT NULL
STATE	INTEGER	1 digit	NOT NULL
PKHASHCODE	INTEGER	10 digits (2147483647)	NOT NULL
INTERVALDURATION	BIGINT	19 digits (9223372036854775807) (In Symfoware, this will be 18 digits)	NOT NULL
INITIALEXPIRATIONRAW	BIGINT	19 digits (9223372036854775807) (In Symfoware, this will be 18 digits)	NOT NULL
LASTEXPIRATIONRAW	BIGINT	19 digits (9223372036854775807)	NOT NULL

Column name	JDBC data type	Length of data (max value)	Constraint
		(In Symfoware, this will be 18 digits)	

For details on the mapping of JDBC and DBMS SQL data types, refer to the JDBC driver manual.

Timer service persistence supports the following databases.

The Java DB database can also be used for application development and sample operations, however the behavior cannot be guaranteed.

- Symfoware
- Oracle
- SQL Server

The Java DB database that provides the table for the timer is saved in the databases directory of the Java EE common directory. Before starting the IJServer cluster, start this database from the asadmin command start-database subcommand.

The default data source that is used for the above database is "jdbc/__TimerPool". Additionally, the default Connection Pool is "__TimerPool". To change the database or JDK version used in the EJB Timer Service, either change the "__TimerPool" setting or change the JDBC Connection Pool that is associated with the default data source "jdbc/__TimerPool".

To use the EJB Timer Service database, specify the IJServer cluster target that will run the resources (data source), and set the resource status to "Enabled". For details on the procedure to change the resource target, refer to "Procedure for Selecting the Target that uses the Resources" in the "Java EE Application Operation" chapter. For details on the procedure to change the resource status, refer to "Procedure for Changing the Resource Status" in the "Java EE Application Operation" chapter.

Records are distinguished by the server instance name, therefore the same table can be used from multiple server instances. When the same table is used from multiple machines, however, the server instance name may duplicate so that the timer created in another server instance machine may be executed when the server instance is started. In this case, make sure that the server instance name will not be duplicated.

The DDL files for table generation are saved for each database as shown below. Refer to the DDL and generate the table.

Windows32/64

C:\Interstage\F3FMisjee\lib\install\databases

Solaris32/64 **Linux32/64**

/opt/FJSVisjee/lib/install/databases

Database	DDL file name
Symfoware	ejbtimer_symfoware.sql
Oracle	ejbtimer_oracle.sql
SQL Server	ejbtimer_mssqlserver.sql
Java DB	ejbtimer_derby.sql

Data Stored in the Table

The timing for access to the timer table is explained below.

Table access timing	Purpose
When the timer is registered	To add timer records.
Immediately before the execution of the callback method	To check that the timer has not been cancelled.
Immediately after the execution of the callback method	To update the execution date of the timer callback method.
The first time the timer getInfo method is executed	To read timer information objects.
When the timer cancel method is executed	To delete timer records.

Table access timing	Purpose
When the TimerService getTimers method is executed	To read timer records registered for server instances.
When the server instance is started	To read the registered timer. If the module is redeployed while the server instance is stopped, all timers are deleted.
Undeployment of the module (*1)	To delete all timers related to the module.
Redeployment of the module (*1)	To delete all timers related to the module.
Deactivation of the module (*1)	To delete all timers related to the module.

*1) The table is not accessed while the server instance is stopped. Timers that have accessed the table are only deleted while the server instance is running.

When access to the data source fails due to an error when the server instance starts up, the ISJEE_EJB5108 WARNING message is output to the server log and the timer service is disabled. In this case, the EJB timer service cannot be obtained.

If an inconsistency occurs in the table or there are timers that are no longer necessary, search and delete the lines of the unnecessary timer using the DBMS tool.

The data that is stored in the table is explained below.

Column name	Data value	Explanation of the data contents
TIMERID	Character string	This is the internal ID that contains the server instance name.
OWNERID	Character string	This is the server instance name.
CREATIONTIMERAW	Milliseconds (*1)	This is the date and time when the timer was created.
BLOB	Binary	This is the information object that was passed by the last argument of the createTimer method when the timer was created. In Entity Bean, this is only the primary key.
CONTAINERID	Number	This is the internal ID of the Bean that implements TimedObject.
STATE	Number	This is the timer status. - 0 (Started) - 1 (Cancel in progress)
PKHASHCODE	Number	This is internal code.
INTERVALDURATION	Milliseconds	This is the distribution interval when the callback processing is executed repeatedly. If there is no repeated execution, this is 0.
INITIALEXPIRATIONRAW	Milliseconds (*1)	This is the date and time of the initial callback processing.
LASTEXPIRATIONRAW	Milliseconds (*1)	This is the date and time when the previous callback processing was executed. If this has not been executed, this is 0.

*1) The date and time are set as milliseconds, starting from 0:00:00 on 1 January 1970.

Settings of the Timer Service

When the distribution interval that is specified is short, the timer processing places a load on the server, therefore a minimum value for the distribution interval can be specified for the IJServer cluster. If the distribution interval specified when the timer was created is smaller than the minimum distribution interval specified in the IJServer cluster, the minimum distribution interval value is used.^(*1)

If there was a rollback in the transaction, or an exception occurred, the EJB timer service executes the callback again after waiting for the time that was specified for the redistribution interval. This is called "redistribution of the EJB timer service".

When redistribution fails, it is repeated. When callback processing is not successful even when the maximum number of redistributions is executed, however, the EJB timer service closes and the timer is deleted.

The following can be specified for the EJB timer service. The Interstage Java EE Admin Console or the `asadmin` command `get/set` subcommand can be used to configure these settings in the IJServer cluster. For details, refer to the Interstage Java EE Admin Console Help, or "asadmin" in the "Java EE Operation Commands" chapter.

- Minimum distribution interval
- Maximum number of redistributions
- Redistribution interval
- Timer data source

^{*1)} The EJB Timer scheduled execution time is calculated and determined in the container internally from the specified date/time and delivery interval. If a large value is specified (for example, the `java.lang.Long.MAX_VALUE` value), there will be a line overflow in the "long" value and it will change to a negative value. Since it will now be less than the minimum delivery interval, the minimum delivery interval value might be used.

Accuracy of Timer and Operation when the Process is Delayed

If the load is concentrated, the start time of the timer may be delayed.

If timer processing is not completed by the time the execution time for the succeeding timer is reached, the succeeding timer waits until the processing of the current timer is complete. After the processing is complete, timers for which the scheduled execution time has been exceeded are executed immediately. When a timer is executed at a certain interval, all processes that have already exceeded the scheduled execution time are executed in succession.

Notes on Running an IJServer Cluster using a Multiple Process Configuration

The created timer is operated by the server instance, so the timer callback method of the Enterprise Bean instance is executed on the server instance. When the `TimerService.getTimers` method is executed, all timers on the server instance of the IJServer cluster can be obtained. When the timer is cancelled, the relevant record is removed from the database table. For this reason, a timer operating under another server instance of the IJServer cluster can also be cancelled. The timer information object is read from the table the first time `getInfo` method is executed. For this reason, therefore, when the `getInfo` method is executed on the server instance where the timer is running, it may fail when the other server instance timer is deleted. In this case, the `getInfo` method throws the `javax.ejb.NoSuchObjectLocalException` exception.

When the timer is created, the EJB timer service stores the server instance name in the database together with the timer information. When the IJServer cluster is restarted, the timer information that is already registered for the same server instance name as the IJServer cluster server instance is obtained. For this reason, some of the registered timers may not be recovered if the IJServer cluster is started with the server instance of the IJServer cluster reduced. To reduce the server instance, delete the records of timers that were not recovered from the database and then register the timers again.

2.10 EJB/JTA Method Logs

The EJB/JTA method log feature is a feature that logs the information shown below to a server log. EJB application method call sequences can be checked using this feature. Use this feature in the debug when developing the EJB application.

- Method information for EJB applications called from the client
- Information about methods called by the EJB container
- `javax.transaction.TransactionManager` API information

Information that is Output by the EJB/JTA Method Log

1. Method information for EJB applications called from the client

The following method information is output for the EJB application that is called from the client application:

- Information about the method call
- Information about the method return
- Information for when an exception occurs in the method

For details on the information that is output, refer to "Output Format" below.

This information is output when the methods shown below are called.

When the EJB application called by the client is an application of EJB2.1 or earlier

Method	Session Bean	Entity Bean
Home interface method	Create remove(handle) remove(primarykey)	create remove(handle) remove(primarykey) findByPrimaryKey find<Enumeration type> find<Collection type> find<Object> ejbHome method
Remote interface method	Business method remove	Business method remove
LocalHome interface method	Create remove	create remove(primarykey) findByPrimaryKey find<Enumeration type>
Local interface method	Business method remove	Business method remove

When the EJB application called by the client is an EJB3.0 application

Method	Session Bean
Remote business interface method	Business method
Local business interface method	Business method

Note

- Entity Bean is not recommended in EJB3.0.
- In EJB3.0 Session Bean, the Remote Home and Local Home interfaces are created automatically by the EJB container. When the EJB/JTA method log feature is used, the interface name is output with "GenericEJBHome_" added, as follows:

```
com.sun.ejb.codegen.GenericEJBHome_Generated
```

2. Information about methods called by the EJB container

The following information is output at the time of the EJB application method call:

- Information about the method call
- Information about the method return
- Information for when an exception occurs in the method

For details on the information that is output, refer to "Output Format" below.

3. javax.transaction.TransactionManager API information

The following javax.transaction.TransactionManager API information which is called using the EJB container transaction control or javax.transaction.UserTransaction API is output:

- Start transaction (begin)
- End transaction (commit/rollback)
- Specify rollback for the transaction (setRollbackOnly)
- Suspend/resume transaction (suspend/resume)

For details on the information that is output, refer to "Output Format" below.

Note

- Use this feature in the debug when developing the application.
- All the method call information for the Java EE applications that were deployed to the IJServer cluster is output to the server log.
- If the Java EE application runs in multiple threads, the method call information that is output will be mixed, therefore multiple threads should not be used.

Output Format

If FINE is specified using the EJB/JTA method log feature, the information shown below will be output.

1. Output format of the method information for EJB applications called from the client

- Information about the method call from the client

```
CLIENT ENTRY: application name EJB name interface name.method name
```

- Information about the return of the method called by the client

```
CLIENT RETURN: application name EJB name interface name.method name
```

- Information about the error return called by the client

```
CLIENT THROW: application name EJB name interface name.method name exception class name:
exception detail string
```

The items that are output and the content are shown below.

Output Item	Explanation
Application name	The application name that was set when the EJB application was deployed will be displayed. The default value is the name without the file extension. If the application was deployed using the EAR module, the name will be output in the following format: application name#module name If the application was deployed using the stand-alone EJB-EAR module, only the application name will be output.
EJB name	If the application is EJB2.1 or earlier, the ejb-name tag value in Deployment Descriptor ejb-jar.xml will be output.

Output Item	Explanation
	If the application is EJB3.0, the @Stateful or @Session name value will be output.
Interface name	The interface name called by the client application will be output.
Method name	The method name is output.
Exception class name	An exception class name indicating that an exception has occurred in the method call is output.
Exception detail string	If the exception that occurred in the method call contains a detail string, that detail string is output.

Output Example 1 (The method information is normal.)

```
[25/06/2010 08:49:26.125 +0900] ISJEE: INFO: ISJEE_EJB_METHODLOG0001: CLIENT ENTRY: EJBapp
SampleBean com.fujitsu.jccc.cbs.SampleRemoteIF.businessMethod:
ThreadID=15,ThreadName=httpWorkerThread-28090-5
[25/06/2010 08:49:27.546 +0900] ISJEE: INFO: ISJEE_EJB_METHODLOG0002: CLIENT RETURN: EJBapp
SampleBean com.fujitsu.jccc.cbs.SampleRemoteIF.businessMethod:
ThreadID=15,ThreadName=httpWorkerThread-28090-5
```

Output Example 2 (The method information contains details of an error.)

```
[25/06/2010 08:49:26.125 +0900] ISJEE: INFO: ISJEE_EJB_METHODLOG0001: CLIENT ENTRY: EJBapp
SampleBean com.fujitsu.jccc.cbs.SampleRemoteIF.businessMethod:
ThreadID=15,ThreadName=httpWorkerThread-28090-5
[25/06/2010 08:49:27.546 +0900] ISJEE: INFO: ISJEE_EJB_METHODLOG0003: CLIENT THROW: EJBapp
SampleBean com.fujitsu.jccc.cbs.SampleRemoteIF.businessMethod: java.rmi.RemoteException:
Attempt to invoke container with null invocation method:
ThreadID=15,ThreadName=httpWorkerThread-28090-5
```

2. Output format of information about methods called by the EJB container

- Information about the method call

```
ENTRY: application name EJB name class name.method name
```

- Information about the method return

```
RETURN: application name EJB name class name.method name
```

- Information about the error return

```
THROW: application name EJB name class name.method name exception class name: exception detail
string
```

The items that are output and the content are shown below.

Output Item	Explanation
Application name	The application name that was set when the EJB application was deployed will be displayed. The default value is the name without the file extension. If the application was deployed using the EAR module, the name will be output in the following format: application name#module name If the application was deployed using the stand-alone EJB-EAR module, only the application name will be output.
EJB name	If the application is EJB2.1 or earlier, the ejb-name tag value in Deployment Descriptor ejb-jar.xml will be output.

Output Item	Explanation
	If the application is EJB3.0, the @Stateful or @Session name value will be output.
Class name	The Bean class name of the EJB application called by the EJB container is output.
Method name	The method name is output.
Exception class name	An exception class name indicating that an exception has occurred in the method call is output.
Exception detail string	If the exception that occurred in the method call contains a detail string, that detail string is output.

Output Example 1 (The method information is normal.)

```
[25/06/2010 08:49:26.125 +0900] ISJEE: INFO: ISJEE_EJB_METHODLOG0001: ENTRY: EJBapp SampleBean
com.fujitsu.jccc.cbs.SampleBean.businessMethod : ThreadID=15,ThreadName=httpWorkerThread-28090-5
[25/06/2010 08:49:27.546 +0900] ISJEE: INFO: ISJEE_EJB_METHODLOG0002: RETURN: EJBapp SampleBean
com.fujitsu.jccc.cbs.SampleBean.businessMethod: ThreadID=15,ThreadName=httpWorkerThread-28090-5
```

Output Example 2 (The method information contains details of an error.)

```
[25/06/2010 08:49:26.125 +0900] ISJEE: INFO: ISJEE_EJB_METHODLOG0001: ENTRY: EJBapp SampleBean
com.fujitsu.jccc.cbs.SampleBean.businessMethod: ThreadID=15,ThreadName=httpWorkerThread-28090-5
[25/06/2010 08:49:27.546 +0900] ISJEE: INFO: ISJEE_EJB_METHODLOG0003: THROW: EJBapp SampleBean
com.fujitsu.jccc.cbs.SampleBean.businessMethod: java.rmi.RemoteException: Attempt to invoke
container with null invocation method: ThreadID=15,ThreadName=httpWorkerThread-28090-5
```

3. javax.transaction.TransactionManager API information

- Information about the transaction control start

```
ENTRY: javax.transaction.TransactionManager method name
```

- Information about the transaction control end

```
RETURN: javax.transaction.TransactionManager method name
```

- Information about the error return

```
THROW: javax.transaction.TransactionManager method name exception class name: exception
detail string
```

The items that are output and the content are shown below.

Output Item	Explanation
Method name	The method name is output.
Exception class name	An exception class name indicating that an exception has occurred in the method call is output.
Exception detail string	If the exception that occurred in the method call contains a detail string, that detail string is output.

Output Example 1 (The transaction control information is normal.)

```
[25/06/2010 08:49:26.125 +0900] ISJEE: INFO: ISJEE_JTA_METHODLOG0001: ENTRY:
javax.transaction.TransactionManager begin: ThreadID=15,ThreadName=httpWorkerThread-28090-5
[25/06/2010 08:49:26.125 +0900] ISJEE: INFO: ISJEE_JTA_METHODLOG0002: RETURN:
javax.transaction.TransactionManager begin: ThreadID=15,ThreadName=httpWorkerThread-28090-5
```

Output Example 2 (The transaction control information contains details of an error.)

```
[25/06/2010 08:49:26.125 +0900] ISJEE: INFO: ISJEE_JTA_METHODLOG0001: ENTRY:
javax.transaction.TransactionManager begin:ThreadID=15,ThreadName=httpWorkerThread-28090-5
```

```
[25/06/2010 08:49:26.125 +0900] ISJEE: INFO: ISJEE_JTA_METHODLOG0003: THROW:
javax.transaction.TransactionManager begin: java.lang.Exception: Nested transaction not
supported.: ThreadID=15,ThreadName=httpWorkerThread-28090-5
```

Note

- If the instance that called the method has already been deleted or the output item information could not be obtained, a hyphen "-" will be displayed for the output item that could not be obtained.
- If the EJB Timer Service is enabled, the method that is called by the EJB Timer Service will be output to the log as "Method information for EJB applications called from the client" or "Information about methods called by the EJB container" as shown below.

```
[30/03/2011 13:19:03.140 +0900] ISJEE: INFO: ISJEE_EJB_METHODLOG0001: CLIENT ENTRY:
__ejb_container_timer_app#ejb.jar TimerBean com.sun.ejb.containers.TimerLocalHome.create:
ThreadID=15,ThreadName=p: thread-pool-1; w: 6
[30/03/2011 13:19:03.140 +0900] ISJEE: INFO: ISJEE_EJB_METHODLOG0001: ENTRY:
__ejb_container_timer_app#ejb.jar TimerBean com.sun.ejb.containers.TimerBean.ejbCreate:
ThreadID=15,ThreadName=p: thread-pool-1; w: 6
```

2.10.1 Definition Detail

The EJB/JTA method log is set by the following log-service properties:

Property name	Value (Bold: Default)	Explanation
javax.enterprise.system.container.ejb.methodlog	FINE	This outputs the method that was called by the EJB container or client to the server log.
	INFO	The method that was called by the EJB container or client to the server log is not output.
javax.enterprise.resource.jta.methodlog	FINE	This outputs the javax.transaction.UserTransaction API call information to the server log.
	INFO	The javax.transaction.UserTransaction API call information is not output to the server log.

Specify the above properties using the asadmin command set subcommand. There is no need to restart the IJServer cluster as a result of the changes made to the value of this setting.

2.10.2 Command Detail

Set the EJB/JTA method log using the asadmin command set subcommand.

Property Name

javax.enterprise.system.container.ejb.methodlog

or,

javax.enterprise.resource.jta.methodlog

Input Values

INFO (default)

FINE

Definition Examples

Windows32/64

```
> asadmin set IJServer001.log-service.module-log-levels.property.javax\enterprise\system\container\ejb\methodlog=FINE
> asadmin set IJServer001.log-service.module-log-levels.property.javax\enterprise\resource\jta\methodlog=FINE
```

Solaris32/64 Linux32/64

```
> asadmin set IJServer001.log-service.module-log-levels.propertyjavax\enterprise\system\container\ejb\methodlog=FINE
> asadmin set IJServer001.log-service.module-log-levels.propertyjavax\enterprise\resource\jta\methodlog=FINE
```



- After the property has been set using the set subcommand, the value that was set for the EJB/JTA method log can be checked using the get subcommand.
- It is not possible to check the value that was set for the EJB/JTA method log by specifying a wildcard (*) in the get or list subcommand. To check the value that was set for the EJB/JTA method log, specify all the definition items and properties in the get subcommand.

2.11 Functionality Provided in JPA

Java Persistence API (JPA) is a Java API that is used for the O/R mapping of Java object persistence derived from EJB 3.0 specification with a relational database.

Java Persistence API is recommended for the persistence of business data in the relational database in Java EE applications. The business data object is called a "Java Persistence Entity" or "Entity". This Entity is not one of the Enterprise JavaBean or Entity Bean types. It is an ordinary Java object (POJO), so there is no need to implement a specific interface. The mapping information of the Entity and the table is defined in the deployment descriptor (orm.xml) or Entity source using the annotation that corresponds to the deployment descriptor (orm.xml) or tag. There is also an appropriate default value.

JPA is defined in the deployment descriptor (orm.xml, persistence.xml) or relevant annotation and persistence unit property. When it is defined in both, the definition file is given the higher priority.

The implementation of JPA is called the "persistence provider". The Interstage persistence provider is provided in this product.

This section explains the JPA runtime environment and database connection.

- [JPA Runtime Environment](#)
- [Persistence Provider Settings](#)
- [Supported Database and Settings](#)

The functionality that can be used when the Interstage persistence provider is used is explained below.

- [Supporting Java Data Types and DBMS SQL Data Types Defined in the Entity](#)
- [Functionality for the Automatic Generation of Primary Key Values](#)
- [Functionality for the Automatic Generation of Database Tables](#)
- [Lock Functionality for the Line](#)
- [SQL Log Functionality](#)

JPA tuning is described in "JPA Tuning" in the "Java EE Function Tuning" chapter.



Notes on the use of JPA in Interstage are described in "Notes About JPA" in the "Release Information" chapter.

2.11.1 JPA Runtime Environment

This section explains the runtime environments that can use JPA. "JPA runtime environment" refers to the container that executes the Java Persistence API. It runs on the same container as applications (such as Servlet/EJB) that call JPA.

Runtime environment	Container manager entity manager	Application management entity manager	
	JTA transaction	JTA transaction	Resource/local transaction
EJB container	Yes	Yes	Yes
Web container	Yes	Yes	Yes
Application client container	No	No	No
Java SE (stand-alone applications)	No	No	Restrictions (*1)
Applet container	No	No	No

Yes: Supported

No: Not supported

Restrictions: Can be used only for development

*1) The application management entity manager is also supported in Java SE stand-alone applications for testing during the application development, however the behavior cannot be guaranteed.

2.11.2 Persistence Provider Settings

The following persistence providers can be used in this product.

- Interstage persistence provider
- Persistence providers that are compliant with other JPA specification

The persistence provider that is used is defined in the deployment descriptor (persistence.xml).

Interstage Persistence Provider

When the Interstage persistence provider is used, do not describe the <provider> tag of the deployment descriptor (persistence.xml). Additionally, do not specify the persistence unit property that corresponds to the <provider> tag in the createEntityManagerFactory (String, Map) method of javax.persistence.Persistence.

When this is used in a Java SE environment, add the following modules to the class path.

Windows32/64

C:\Interstage\F3FMisjee\lib\toplink-essentials.jar

Solaris32/64 **Linux32/64**

/opt/FJSVisjee/lib/toplink-essentials.jar

When this is used in a Java EE environment (web, EJB, or application client container), the above modules are automatically set in the class path, therefore it is not necessary to add them.

When the data is loaded from the database using FetchType.LAZY in the 1:1 or many:1 relationship, specify the above module path in the -javaagent option of the java command.

Example

Example of the -javaagent setting

```
> java -javaagent:C:\Interstage\F3FMisjee\lib\toplink-essentials.jar com.example.MyApp
```

Note

Notes on the Interstage persistence provider

An exception that starts with `oracle.toplink.essentials` may be thrown as the exception that is returned by JPA. The exception class that starts with `oracle.toplink.essentials` is contained in the above module that is set in the class path. For this reason, the above class path settings are required in order to call EJB applications that use JPA from Java SE stand-alone applications when the exception that occurred in JPA is returned to the Java SE stand-alone application.

If the class path is not set, the returned exception may not be recovered by the IIOP communication layer and the IOP00810257 error may occur.

Other Persistence Providers

When another persistence provider is used, the provider class name of the persistence provider is defined in the `<provider>` tag of the deployment descriptor (`persistence.xml`), or the provider class name is specified in the `createEntityManagerFactory(String, Map)` method of `javax.persistence.Persistence`.

The behavior for other persistence providers cannot be guaranteed. If a problem occurs, contact the supplier of the persistence provider.

Add the persistence provider class to the class path of the class loader or the application module according to the scope that is required. For details on the method that is used to set the class path for the class loader, refer to "2.23 Class Loader". For details on the method that is used to set the class path for the Java EE application client, refer to "Setting the Java EE Application Client Environment" in the "Java EE Function Tuning" chapter.

For details on provider class names for the persistence provider and the classes or Jar modules required for the class path, refer to the persistence provider manual.

Example

Example of the definition for another persistence provider

```
<persistence xmlns="http://java.sun.com/xml/ns/persistence"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/persistence
    http://java.sun.com/xml/ns/persistence/persistence_1_0.xsd"
  version="1.0">
  <persistence-unit name="com.company.my.pu">
    <provider>com.example.jpa.PersistenceProviderImpl</provider>
    <jta-data-source>jdbc/myDatasource</jta-data-source>
  </persistence-unit>
</persistence>
```

2.11.3 Supported Database and Settings

For details on the databases that are supported by the Interstage persistence provider, refer to "Database" in the "Supported Software" chapter.

The database that is supported in this product should be used even when another persistence provider is used.

The method that is used to set the database depends on the runtime environment.

Database Settings in the Java EE Environment

When JPA is used in an EJB, web, or application client container, perform the following:

Prepare the data source. For details on the method that is used to create the data source, refer to "Setting the Database Environment" in the "Java EE Application Operation" chapter.

Define the data source name for the prepared data source in the <jta-data-source> or <non-jta-data-source> of the deployment descriptor (persistence.xml).

In this product, the data source name is obtained from the definition in the following order.

- **Operation using a JTA transaction**

1. <jta-data-source>

- **Operation using a non-JTA transaction (resource local transaction)**

1. <non-jta-data-source>
2. <jta-data-source>

When the Interstage persistence provider is used by the EJB or web container and the data source name is not defined, the default data source name ("jdbc/__default") is used.

When a connection that is obtained from JDBC connection pool is required, it is registered in the transaction context automatically. The non-transaction connection settings of the connection pool are ignored.



Example

Example of the data source definition when using a JTA transaction

```
<persistence xmlns="http://java.sun.com/xml/ns/persistence"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/persistence
    http://java.sun.com/xml/ns/persistence/persistence_1_0.xsd"
  version="1.0">
  <persistence-unit name="com.company.my.pu" transaction-type="JTA">
    <jta-data-source>jdbc/myDatasource</jta-data-source>
  </persistence-unit>
</persistence>
```

Database Settings in the Java SE Environment

The Interstage persistence provider can be used as a Java stand-alone application in the Java SE environment during application development or testing. In this case, the database definition is specified in the createEntityManagerFactory(String, Map) method of javax.persistence.Persistence with the properties shown below when the deployment descriptor (persistence.xml) or entity manager factory is obtained. When it is specified in both, the settings defined in the latter are given the higher priority.

Persistence unit property name	Explanation
toplink.jdbc.driver	This is the JDBC driver class name (the java.sql.Driver implementation class).
toplink.jdbc.url	This is the JDBC URL assumed by the driver for access to the database.
toplink.jdbc.user	This is the user name used for authentication access to the database.
toplink.jdbc.password	This is the password used for access to the selected database. A password alias cannot be used.

For details on the settings of the driver class name, JDBC URL, library, and class path that are required to use the JDBC driver, refer to the JDBC driver manual.

Example

Example of the definition of a Java SE stand-alone application database

```
<persistence xmlns="http://java.sun.com/xml/ns/persistence"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/persistence
    http://java.sun.com/xml/ns/persistence/persistence_1_0.xsd"
  version="1.0">
  <persistence-unit name="com.company.my.pu"
    transaction-type="RESOURCE_LOCAL">
    <class>com.example.entity.Employee</class>
    <class>com.example.entity.Department</class>
    <properties>
      <property name="toplink.jdbc.driver"
        value="oracle.jdbc.OracleDriver"/>
      <property name="toplink.jdbc.url"
        value="jdbc:oracle:thin:@dbhost:1521:mysid"/>
      <property name="toplink.jdbc.user"
        value="user1"/>
      <property name="toplink.jdbc.password"
        value="pwd1"/>
    </properties>
  </persistence-unit>
</persistence>
```

2.11.4 Supporting Java Data Types and DBMS SQL Data Types Defined in the Entity

When the following processes are executed, the Interstage persistence provider executes the JDBC API (set method, get method) that corresponds to the data type in the Entity persistence field.

- When obtaining the value from the query method execution result
Execute the get method of ResultSet.
- When the persistence field and the query method parameter are specified as SQL query conditions
Execute the set method of PreparedStatement.
- When the persistence field value is specified in the SQL statement using Entity create/update
Execute the set method of PreparedStatement.

The combination of Java and DBMS SQL data types that can be used depends on the JDBC driver specifications. Refer to the JDBC driver manual for details.

The support for API of the JDBC driver used by the Java data type and the Interstage persistence provider are explained below.

Note

Notes about when the SQL data type is CHAR type

If CHAR type data (a value that is obtained from the column that matches the `java.sql.Types.CHAR` return value of the `getColumnType` method for `ResultSetMetaData`) is included in the query method execution result, all concatenated characters that have a code of value of `"\u0020"` or less at the end of the character string are taken to be spaces and removed, then set in Entity.

Standard Data Type

The JDBC API (set method, get method) is used for the following data types.

- boolean, `java.lang.Boolean`

- byte, java.lang.Byte
- short, java.lang.Short
- int, java.lang.Integer
- long, java.lang.Long
- float, java.lang.Float
- double, java.lang.Double
- java.lang.String
- java.math.BigDecimal
- java.sql.Date
- java.sql.Time
- java.sql.Timestamp
- byte[]

Other Data Types

The following date types are converted to the standard data type and used by the JDBC API (set method, get method).

Data type	Standard data type that the data type is converted to
char, java.lang.Character	java.lang.String
char[], java.lang.Character[]	java.lang.String
java.math.BigInteger	java.math.BigDecimal
java.util.Date	Defined TemporalType
java.util.Calendar	Defined TemporalType
enum(ordinal)	java.lang.Integer
Enum(String)	java.lang.String
Other	byte[]

Note

Interstage persistence provider does not issue the UPDATE statement to the database if there is no change in the data stored in the Entity. To check whether there was a change in the Entity persistence field from the user application, create a copy of the data during the Entity search or the merge, and compare the data when the flush or transaction is committed. For the "Other" data type that is converted to byte[], the byte array is compared after serialization processing. For this reason, if a data type (such as java.util.Hashtable or java.util.Properties) for which the byte array is changed by serialization and serialization recovery processing is used, the UPDATE statement may also be issued for transactions for which only the search was performed.

When another persistence provider is used, refer to the manual of that persistence provider.

2.11.5 Functionality for the Automatic Generation of Primary Key Values

The primary key is a function that is managed in the Interstage persistence provider. If the primary key executes a persistence operation (the EntityManager persist method) for a new Entity that has not been set, the persistence provider connects to DBMS and a primary key is assigned to Entity automatically. When this function is used, the database table automatic generation function must also be used at the same time.

The Interstage persistence provider provides the following generation patterns that are defined in the JPA specifications, however the generation patterns that are supported depend on DBMS.

Generation pattern	Policy for generation policy of the primary key value
AUTO	The persistence provider selects the appropriate generation policy.
TABLE	The table for the primary key value generation is used.
SEQUENCE	The database sequence functionality is used.
IDENTITY	The IDENTITY column for the database is used.

The policy to be selected and the default values that are defined are explained below.

Definition using the annotation is described below. When the deployment descriptor (orm.xml) is specified, read the annotation definition as the deployment descriptor (orm.xml) tag definition that corresponds to the annotation.

- If the @GeneratedValue is defined, the attribute default value will be as follows:

Value defined for strategy	DBMS used	Policy selected
AUTO	Symfoware Oracle	If the generator value is omitted, the Generator name will be SEQ_GEN. If this Generator is not defined, TableGenerator that uses the attribute default value will be used.
	SQL Server Java DB	If the generator value is omitted, the Generator name will be SEQ_GEN. If this Generator is SequenceGenerator, the IDENTITY column will be used. If this Generator is not defined, TableGenerator that uses the attribute default value will be used.
TABLE	All	If the generator value is omitted, TableGenerator will be used. The TableGenerator name will be SEQ_GEN_TABLE. If this Generator is not defined, TableGenerator that uses the attribute default value will be used. If the SequenceGenerator name is defined in the generator, however, SequenceGenerator will be used.
SEQUENCE or IDENTITY	Symfoware Oracle	SequenceGenerator is used. If the generator is omitted, the name will be SEQ_GEN_SEQUENCE and the default value will be used for another attribute. However, if TableGenerator name is defined in the generator, TableGenerator will be used.
	SQL Server Java DB	The IDENTITY column is used. If the TableGenerator name is defined in the generator, however, TableGenerator will be used.

- The default value of the sequenceName attribute of @SequenceGenerator is the same as name of @SequenceGenerator.
- The default values of the @TableGenerator attribute are as follows.

Attribute name	Default value
Table	SEQUENCE
pkColumnName	SEQ_NAME
pkColumnValue	Same value as name of @TableGenerator
valueColumnName	SEQ_COUNT

Note

Notes about the primary key value automatic generation function

- The "SEQ_GEN_SEQUENCE", "SEQ_GEN_IDENTITY" default value cannot be specified as the TableGenerator name.
- The "SEQ_GEN_TABLE", "SEQ_GEN_IDENTITY" default value cannot be specified as the SequenceGenerator name.
- For the Generator name, specify any value, regardless of the Generator type.
- For other DBMS-specific notes, refer to "Notes About JPA" in the "Release Information" chapter.

- Tables for primary key values created using the automatic table generation function might be referenced by multiple applications, therefore they are not destroyed when the application is undeployed. Delete the tables manually where necessary.

2.11.6 Functionality for the Automatic Generation of Database Tables

To check the behavior of the developed Entity during development, the following functionality is provided for automatic table generation.

- **Functionality for automatic table generation**

A table that corresponds to the Entity is created when the module is deployed.

- **Functionality for automatic table re-generation**

A table that corresponds to the Entity is re-created when the module is redeployed.

- **Functionality for automatic table deletion**

The table that corresponds to the Entity is deleted when the module is undeployed.

- **Functionality for the writing of table generation and deletion DDL (Data Definition Language) in the file**

The DDL for table generation and deletion is written in the file when the module is deployed. Based on the DDL that is written in the file, the user can create tables using the DBMS tool.

When the table is created or deleted, the following commands are issued to the database via the JDBC driver: CREATE TABLE (used for table creation), CREATE SEQUENCE/INSERT INTO SEQUENCE (used for sequence creation), ALTER TABLE ADD CONSTRAINT (used for external key constraint addition), ALTER TABLE DROP CONSTRAINT (used for constraint deletion), DROP SEQUENCE (used for sequence deletion), and DROP TABLE (used for table deletion). For other tasks, refer to the database and JDBC driver manual.

To use this functionality, configure the JDBC driver environment settings in the Interstage Java EE DAS service, and use the property definition of the deployment descriptor (persistence.xml) or the table generation option of the asadmin command deploy and undeploy subcommands.

For details on the JDBC driver environment settings, refer to "Setting the JDBC Driver Environment" in the "Java EE Application Operation" chapter. For details on the asadmin command deploy and undeploy subcommand options, refer to "asadmin", "Subcommands - Category: Application Deployment" in the "Java EE Operation Commands" chapter.

The properties that are specified in the deployment descriptor (persistence.xml) are shown in the table below.

Persistence unit property name	Value (default value in bold)	Explanation
toplink.ddl-generation	create-tables	The table generation DDL is issued to the database. If the table already exists, a WARNING is output and deployment continues without changing the existing table.
	drop-and-create-tables	For redeployment, the table deletion DDL is issued to the table and then the table generation DDL is issued. For new deployment, only the table generation DDL is issued to the database.
	none	The table and DDL are not created, even if toplink.ddl-generation.output-mode is defined.
toplink.ddl-generation.output-mode	sql-script	The table generation/creation DDL are written in the file.
	database	The table generation/creation DDL are written in the file and issued to the database.
	both (*1)	
	None	The table and DDL are not generated, even if toplink.ddl-generation is defined.
toplink.application-location	<path>	This is the storage destination of the DDL file. Specify this if the DDL that is issued needs to be checked. (*2)
toplink.create-ddl-jdbc-file-name	<file name>	This is the table generation DDL file name. (*3)

Persistence unit property name	Value (default value in bold)	Explanation
toplink.drop-ddl-jdbc-file-name	<file name>	This is the table deletion DDL file name. (*4)

For properties in which fixed values are specified, it makes no difference whether upper or lower case is specified.

*1)

If a value other than "sql-script", "database", "both" or "none" is set for toplink.ddl-generation.output-mode, then the specified value will be ignored and the default ("both") will be used instead.

*2)

When this is omitted, the name will be as follows. In Solaris/Linux, read "/" for "\".

Storage location of persistence.xml in the deployment module	DDL file default storage destination
In the EJB-JAR or WAR file	[Java EE common directory]\domains\interstage\generated\ejb\j2ee-modules\ [app name]
In the EJB-JAR or WAR file included in EAR	[Java EE common directory]\domains\interstage\generated\ejb\j2ee-apps\ [app name]
Others, such as libraries included in EAR	[Java EE common directory]\domains\interstage\generated\ejb\j2ee-apps\ [app name]

*3)

When this is omitted, the name will be as follows. (*5)

[module name] + "_" + [persistence unit name] + "_createDDL.jdbc"

*4)

When this is omitted, the name will be as follows. (*5)

[module name] + "_" + [persistence unit name] + "_dropDDL.jdbc"

*5)

The module name is dependent on the location where deployment descriptor (persistence.xml) is stored when the application is deployed. "Persistence unit name" refers to the persistence-unit name of the deployment descriptor (persistence.xml).

Storage location of persistence.xml in the deployed module	Module name used for DDL file name
In the EJB-JAR or WAR file	EJB-JAR or WAR FILE name (without the file extension part)
In the EJB-JAR or WAR file contained in EAR	EAR FILE name+[_] + EJB-JAR or WAR file name (without the file extension part for both)
The library contained in EAR and similar, others	"default"



Example

Example of how to define the automatic table generation

```
<persistence xmlns="http://java.sun.com/xml/ns/persistence"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/persistence
    http://java.sun.com/xml/ns/persistence/persistence_1_0.xsd"
  version="1.0">
  <persistence-unit name="com.company.my.pu">
```

```

<jta-data-source>jdbc/myDatasource</jta-data-source>
<properties>
  <property name="toplink.ddl-generation"
    value="drop-and-create-tables"/>
  <property name="toplink.ddl-generation.output-mode"
    value="sql-script"/>
  <property name="toplink.application-location"
    value="/tmp/ddl"/>
  <property name="toplink.create-ddl-jdbc-file-name"
    value="myds-create-ddl.sql"/>
  <property name="toplink.drop-ddl-jdbc-file-name"
    value="myds-drop-ddl.sql"/>
</properties>
</persistence-unit>
</persistence>

```



Note

Notes on the functionality for automatic table generation

- The automatic table generation destination is on the default database space (in Oracle, this will be the table space and in SQL Server, the primary file group). In Symfoware, since there is no default database space, the table is created on a database space that has the same name as the database (this database space must be created manually).
- The tables that are created automatically and the table DDL are for the development environment. In the operating environment, use a table that has been prepared by the database administrator.
- When Symfoware is used, an index must be created for the primary key column that was generated automatically. Refer to the Symfoware manual and then create the index.
- Do not specify the same file name for the table generation/deletion DDL file names.
- When a table is deleted on undeployment of the module, the DDL that is stored in the table deletion DDL file is used. For this reason, if this file is deleted the table deletion will fail and an error will be output when the module is undeployed.
- The schema of the table that is created using the automatic table generation feature is set in the connection destination database automatically. For details on the schema that is set, refer to each database manual.

However, by specifying the schema name in the JDBC driver environment settings in Symfoware, it is possible to set the schema for a table created using the automatic table generation feature.

- When an application is deployed using the automatic database table generation feature and the Symfoware table is generated, the table is generated using the JDBC Connection Pool on the Interstage Java EE DAS Service. However, according to the Symfoware specification, resources that are accessed during the session cannot be deleted until the session ends. For this reason, when the connection that generated the table is in the Connection Pool and that table is deleted automatically as a result of undeployment, an error message is output by Symfoware and the table deletion may fail. In this case, delete the table manually. For details on deleting resources that are in session, refer to the Symfoware manual.
- To obtain the application management Entity Manager in a Java SE environment or application client container, the database table automatic generation function is executed when Entity Manager is generated, not when the module is deployed. At this time, the DDL storage destination if the `toplink.application-location` property was omitted will be the JVM current directory. The DDL file names if the `toplink.create-ddl-jdbc-file-name` or `toplink.drop-ddl-jdbc-file-name` properties were omitted will be as follows:
 - `createDDL.jdbc`
 - `dropDDL.jdbc`

The SQL data type of the DBMS column that corresponds to the Entity persistence field can be defined as follows.

```

@Column (columnDefinition="VARCHAR(128) NOT NULL")
public String name ;

```

When the SQL data type of the DBMS column that corresponds to the Entity persistence field is not defined, the following defaults are used by DBMS.

Java data type	DBMS SQL data type			
	Symfoware	Oracle	SQL Server	Java DB
boolean java.lang.Boolean	SMALLINT default 0	NUMBER(1) default 0	BIT default 0	SMALLINT DEFAULT 0
byte java.lang.Byte	SMALLINT	NUMBER(3)	SMALLINT	SMALLINT
char java.lang.Character	CHARACTER(1)	CHAR(1)	CHAR(1)	CHAR(1)
short java.lang.Short	SMALLINT	NUMBER(5)	SMALLINT	SMALLINT
int java.lang.Integer	INTEGER	NUMBER(10)	INTEGER	INTEGER
long java.lang.Long	NUMERIC(18)	NUMBER(19)	NUMERIC(19)	BIGINT
float java.lang.Float	NUMERIC(18,4)	NUMBER(19,4)	FLOAT(16)	FLOAT
double java.lang.Double	NUMERIC(18,4)	NUMBER(19,4)	FLOAT(32)	FLOAT
java.lang.String	VARCHAR(255)	VARCHAR2(255)	VARCHAR(255)	VARCHAR(255)
java.math.BigDecimal	DECIMAL(18)	NUMBER(38)	NUMERIC(28)	DECIMAL
java.math.BigInteger	NUMERIC(18)	NUMBER(38)	NUMERIC(28)	BIGINT
java.sql.Date	DATE	DATE	DATETIME	DATE
java.sql.Time	TIME	TIMESTAMP	DATETIME	TIME
java.sql.Timestamp	TIMESTAMP	TIMESTAMP	DATETIME	TIMESTAMP
java.util.Date	Refer to the specified TemporalType mapping			
java.util.Calendar				
byte[]	BLOB(1024)	LONG RAW	IMAGE	BLOB(64000)
java.lang.Byte[]	BLOB(1024)	LONG RAW	IMAGE	BLOB(64000)
char[]	VARCHAR(255)	LONG	TEXT	CLOB(255)
java.lang.Character[]	VARCHAR(255)	LONG	TEXT	CLOB(255)
enum(ordinal)	Refer to the java.lang.Integer mapping			
enum(String)	Refer to the java.lang.String mapping			
Serializable object	BLOB(1024)	LONG RAW	IMAGE	BLOB(64000)
(LOB)byte[]	BLOB(1024)	BLOB	IMAGE	BLOB(64000)
(LOB)java.lang.Byte[]	BLOB(1024)	BLOB	IMAGE	BLOB(64000)
(LOB)Serializable object	BLOB(1024)	BLOB	IMAGE	BLOB(64000)
(LOB)char[]	VARCHAR(32000)	CLOB	TEXT	CLOB(64000)
(LOB)java.lang.Character[]	VARCHAR(32000)	CLOB	TEXT	CLOB(64000)

Java data type	DBMS SQL data type			
	Symfoware	Oracle	SQL Server	Java DB
(LOB)java.lang.String	VARCHAR(32000)	CLOB	TEXT	CLOB(64000)

When Symfoware is used with the JPA automatic database table generation feature, an index will be generated automatically for the primary key or unique constraint key columns. The index name is as follows:

IX_table name_identifier

For "table name", specify the JPA target table name. For "identifier", specify the identifier that was generated. Additionally, Symfoware table names cannot contain spaces, double quotes ("), or single quotes ('). If they do, the automatic generation of the table/index will fail. If the index name that is generated according to this rule exceeds 36 characters, the index name will be modified so that it does not exceed 36 characters (for example, "IX_" will not be included in the name). Normally, the Symfoware index name is 8 characters or less, however this can be extended by specifying DEFAULT_DSI_NAME=CODE in the system's operating environment file. For details on index name restrictions, refer to the Symfoware manual.

To check the index name that has been used, refer to the DDL file that is created using the automatic database table generation feature.

2.11.7 Lock Functionality for the Line

When update processing is executed from search processing for the same DBMS line from multiple transactions simultaneously, the data in the transaction may not be consistent and an error such as a deadlock may occur.

As a response measure for this, the **Optimistic Locking functionality** and **Pessimistic Locking functionality** can be selected.

When READ_COMMITTED is used for the isolation level, it is recommended that the JPA **Optimistic Locking functionality** is used. When a table is updated, the Optimistic Locking functionality checks whether there is an update in the record in another transaction. If an update is detected, an error is returned, therefore data consistency is maintained. This functionality only locks the line for a short time, therefore it is useful for high-load environments in which the update frequency for the same record is low.

If a higher level than READ_COMMITTED (REPEATABLE_READ, SERIALIZABLE) is used for the isolation level, it is recommended that the **Pessimistic Locking functionality** is used. The Pessimistic Locking functionality may be able to prevent deadlock errors, therefore it is useful for frequent updates of the same record.

The Pessimistic Locking functionality that is released with the Interstage persistence provider issues the SELECT FOR UPDATE command when the record is searched. By issuing the SELECT FOR UPDATE statement, DBMS places an exclusive lock on the lines that are update targets, so update by another transaction is blocked until the end of the transaction.

Defining the Optimistic Locking Functionality

For details on how to define the Optimistic Locking functionality, refer to the JPA specification.

Defining the Pessimistic Locking Functionality

The Pessimistic Locking functionality is defined in the JPQL query hint.

Query hint name	Value (default value in bold)	Explanation
toplink.pessimistic-lock	Lock	The SELECT FOR UPDATE command is used when the query is executed.
	LockNoWait	The SELECT FOR UPDATE NOWAIT is used when the query is executed.
	NoLock	SELECT is used when the query is executed.

It makes no difference whether upper or lower case is specified for these values.

If the line for which the attempt to place the exclusive lock is already blocked by another transaction, the SELECT FOR UPDATE NOWAIT returns an error immediately. For this reason, the application will not be stopped until the exclusive lock is released.

The query hint is specified in the deployment descriptor (orm.xml) query-hint tag, annotation (@QueryHint), or Query.setHint method.

This method that is used to specify the Pessimistic Locking functionality in the annotation is shown below.

```
@NamedQuery(name="Order.findBigOrders",
    query="SELECT o FROM Order o WHERE o.quantity > :minimum",
    hints={@QueryHint(name="toplink.pessimistic-lock", value="Lock")})
```

The method that is used to specify the Pessimistic Locking functionality using the Query.setHint method is shown below. The difference with the above example is that the functionality is only used only for this execution, whereas in the above example it is used in all areas that use the Order.findBigOrders query.

```
Collection bigOrders = em.createNamedQuery("Order.findBigOrders")
    .setParameter("minimum", "1000")
    .setHint("toplink.pessimistic-lock", "Lock")
    .getResultList();
```



Note

Notes on lock functionality for the line

- The SELECT FOR UPDATE (NOWAIT) command is DBMS functionality. For details on notes on use, refer to the DBMS manual.
- The lock functionality for the line is JPQL query functionality. It cannot be used in the find method and get access or method for relationships, for example.
- Even if the lock functionality for the line is used, deadlocks may occur due to the DBMS specifications. In this case, try re-executing the process in which the deadlock occurred.
- When another lock functionality provided in the database is used, consider overwriting the Java Persistence Query Language (JPQL) query defined in the NamedQuery annotation with a native SQL query is ten and defining an SQL query that uses the database lock functionality.

2.11.8 SQL Log Functionality

The SQL log functionality can be used to investigate applications that use the JPA functionality and check SQL statements issued by the Interstage persistence provider for the purposes of tuning. If an SQL statement is issued by the Interstage persistence provider when the SQL log is used, or an exception occurs when the SQL statement is issued, a dynamic parameter is output to the log.

The SQL log is set using the following persistence unit properties.

Persistence unit property name	Value (default value in bold)	Explanation
toplink.logging.level.sql	FINE	The SQL statement is output to the server log.
	CONFIG	The SQL statement is only output to the server log when an exception has occurred.
	INFO	The SQL statement is not output to the server log.

The value of this property is not case-sensitive.

When the deployment descriptor (persistence.xml) or entity manager factory is obtained, specify the persistence unit property in the createEntityManagerFactory(String, Map) method of javax.persistence.Persistence.



Example

An example of the SQL log settings is shown below.

```
<persistence xmlns="http://java.sun.com/xml/ns/persistence"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://java.sun.com/xml/ns/persistence
        http://java.sun.com/xml/ns/persistence/persistence_1_0.xsd"
    version="1.0">
    <persistence-unit name="com.company.my.pu">
```

```

<jta-data-source>jdbc/myDatasource</jta-data-source>
<properties>
  <property name="toplink.logging.level.sql" value="FINE"/>
</properties>
</persistence-unit>
</persistence>

```

Example

An example of the output of the SQL log to the server log when FINE is specified is shown below.

```

[12/01/2011 11:20:31.296 +0800] ISJEE: INFO: ISJEE_JPA0021: SQL statement=INSERT INTO EJB_PERSON
(NAME, HOBBY) VALUES (?, ?)
bind => [Henry_EJB_JPA, football]: ThreadID=63,ThreadName=p: thread-pool-1; w: 17
[12/01/2011 11:20:31.296 +0800] ISJEE: WARNING: ISJEE_JPA0020: caught throwable:
ThreadID=63,ThreadName=p: thread-pool-1; w: 17
Local Exception Stack:
Exception [TOPLINK-4002] (Oracle TopLink Essentials - 2.1 (Build SNAPSHOT (12/31/2010))):
oracle.toplink.essentials.exceptions.DatabaseException
Internal Exception: java.sql.SQLException: [SymfoWARE ODBC Driver][SymfoWARE Server] JYP7203E The
table "EJB_PERSON" does not exist.
Error Code: -7203
Call: INSERT INTO EJB_PERSON (NAME, HOBBY) VALUES (?, ?)
      bind => [Henry_EJB_JPA, football]
Query: InsertObjectQuery(com.fnst.jpa.entity.Person@1c42452)

```

When this functionality is used in Java SE stand-alone applications, this property can be set as a Java VM option. When it is specified for both the Java VM option and the createEntityManagerFactory method, the settings specified for the createEntityManagerFactory method are given the higher priority.

Example

An example of the output of the SQL log in Java SE environment is shown below.

```

[TopLink Fine]: 2008.01.14 05:24:49.125--ClientSession(25709120)--Connection(127
74933)--JPA0021: SQL statement=SELECT ID, NAME FROM CUSTOMER WHERE (NAME = ?)
      bind => [Tarou]

```

2.12 ORB (Object Request Broker)/RMI-IIOP

The ORB (Object Request Broker) functionality for the calling of requests via IIOP (Internet Inter-ORB Protocol) between objects located on different machines is provided in Java EE.

ORB

To call applications on remote servers, ORB executes the following processing. For this reason, the application does not have to implement processing that is related to network communication.

- Search of name objects specified by the caller from the network
- Management of communication connections
- Conversion of request data to data types that can be used for communication and the sending of it to the object
- The calling of the object method that is used on the server and the returning of the result to the client

ORB definitions can be edited using the Interstage Java EE Admin Console or the asadmin command.



Processing that converts request data to a data type that is usable for communication is called "marshaling".

RMI-IIOP

By the creation of an application with the RMI (Remote Method Invocation) format, an application that uses RMI-IIOP can call an Enterprise JavaBean that is running on a remote server via IIOP communication. Access to a remote server naming service using JNDI can also be performed via IIOP communication.

When an application on the same Java VM is called, ORB calls the application automatically without using IIOP communication, and performance is optimized because unnecessary network communication is prevented.

IIOP Listener

The IIOP listener is a listener socket that receives the network connection from the Enterprise JavaBean client. Three domains are provided for the domain. Specify the listener port number and network address in each listener.

The IIOP listener definition can be edited using the Interstage Java EE Admin Console or the `asadmin` command.

Firewall connections

To set up a firewall system safely, set the system up so that the web application receives requests via a firewall/proxy server that are compliant with HTTP(S) and so that IIOP communication is performed inside the firewall.



To call an application on a remote server using IIOP communication across a firewall, it will be necessary to configure the firewall settings to allow access to the listener port of the IIOP listener. However, this setting is not recommended from a security perspective because of the high risk. (The HTTP tunneling feature that uses an HTTP-IIOP gateway cannot be used in the Java EE runtime environment.)

Stub

When remote server applications are called via RMI-IIOP, the stub that implements the remote interface is used. The stub is generated when the application is deployed. By using the stub, the client can call applications that run on remote servers as though they run on the same machine.

In the Java EE runtime environment, the stub is generated on the memory dynamically during the application. This type of stub is called a "dynamic stub". To use a dynamic stub, the remote interface must have been set in the caller's classpath.

Object Management

The naming server manages the application object and name. The JNDI API is used to access to the naming service. For details, refer to "[2.14.1 Naming Service](#)".

Exception Information

For details on the exception information that is output when an error occurs during IIOP communication, refer to "Exception information during IIOP communication" in the "Java EE Messages" chapter.

2.13 Application Client Container

In the Java EE specification, the application server EJB application or application that is executed on the client machine that accesses the web service is called a "Java EE application client".

In this product, the **application client container** is provided as the runtime environment for the execution of the Java EE application client. Unlike the web container and the EJB container, the application client container is the light-weight container so it can run on the client machine.

The Java EE application client has the main method, therefore it can also be executed using the java command in the same way as for normal Java SE stand-alone applications. The following benefits can be seen when it is run on the application client container, however.

Easy environment settings

Before the Java EE application client runs, the application client container sets the class path automatically. Additionally, the Java EE application client operation can be customized using the Interstage deployment descriptor file (sun-acc.xml) for the application client container.

Dependency Injection can be used

The Java EE application client can use Dependency Injection. Before the Java EE application client runs, the application client container reads the annotation in the application and then inserts the object. For details on the use of annotation, refer to "Creating the Client Application" in the "Java EE Application Development" chapter.

The deployment descriptor file (application-client.xml) can be used

In the Java EE specification, a callback handler can be specified in the deployment descriptor file (application-client.xml). The application client container calls back the specified processing based on the information that was defined.

Additionally, JNDI java:comp environment naming context can be used, based on the information that was defined in the deployment descriptor file.

In this explanation, the application that runs on the application client container is called the "**Java EE application client**", and the application that is executed using the java command is called the "**Java SE stand-alone client**".



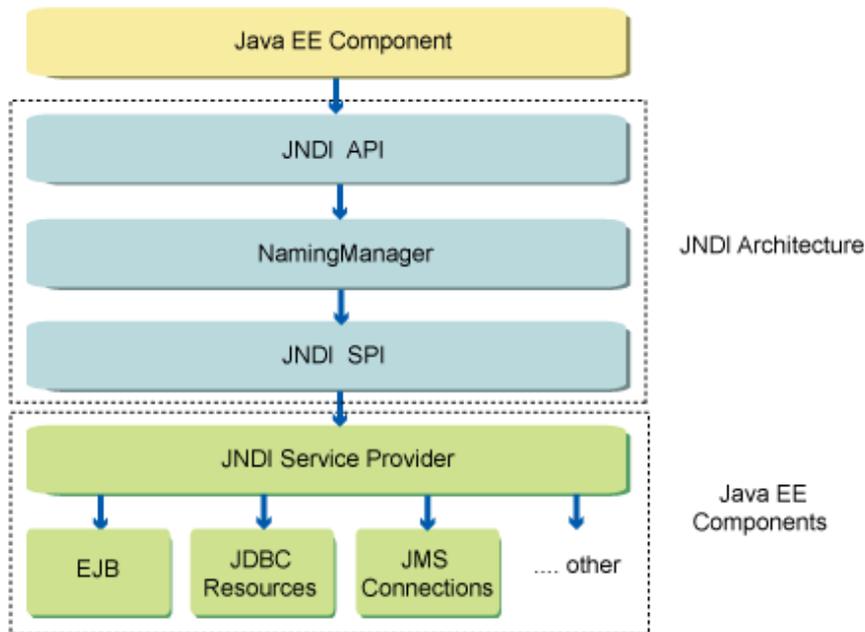
The application client container requires the server JNDI connection, regardless of the application processing. To call applications on the server across a firewall, the firewall must be configured so that access is allowed from the application client container to the server IIOP listener port. With this type of configuration, however, the security risks are high, and therefore not recommended.

2.14 JNDI

Java Naming and Directory Interface ("JNDI") can be accessed using the standard API for each naming service and directory service. The JNDI architecture consists of API (Application Programming Interface) and SPI (Service Provider Interface).

This product provides JNDI SPI implementations that access IJServer cluster objects. This implementation is called a "JNDI service provider". Accordingly, Java EE components can access each object provided by the JNDI service provider using the JNDI API.

The JNDI configuration is described below. The NamingManager shown in the figure below calls a JNDI service provider that implements the JNDI SPI based on the specified environment property and returns/manages objects that have the specified name. API, NamingManager, and SPI are provided by Java SE.



This section explains the following:

- [Using Dependency Injection](#)
- [Naming Service and Environment Naming Context](#)
- [Hierarchical Object Management](#)

Using Dependency Injection

A new method called Dependency Injection ("DI") is provided as a method to access the object managed by the container in Java EE or later, in the same way as for JNDI. When JNDI is used, the Java EE component must execute the lookup method to obtain objects managed by the application server. When DI is used and the annotation is defined in the Java EE component, however, the container reads the defined annotation automatically and inserts the object information if necessary. The benefits of using DI are shown below.



Note

The container obtains the target object when the Java EE component instance is generated and inserts it in the annotation. After the instance is generated, the object is not inserted again, and hence DI cannot be used anymore once the object is deleted. In particular, the insertion of Stateful Session Bean is not recommended because the instance might be deleted by the Stateful Session Bean instance non-communication time monitoring function.

Reducing the number of test man-hours

The application server environment of the reference destination must be set up to use JNDI. However, single tests can be performed because DI can also run as a normal application.

Reducing the application code volume

When DI is used, the container dynamically reads the annotation and inserts the object if necessary, therefore the application code volume is deleted. Additionally, the existing Java EE component must define the application operation in the XML file. When DI is used, however, the description volume of the XML file is deleted because the application operation can be defined as an annotation.

By using DI as shown above, the development efficiency of the application is improved. For details on how to use DI, refer to the appropriate Java EE specification. JNDI can also be used in the existing manner.

Naming Service and Environment Naming Context

Java EE JNDI provides the following as the mechanisms for managing objects.

Naming service

A naming service that manages objects on the IJServer cluster using a unique JNDI name.

Environment Naming Context

This is the naming context that manages objects using the `java:comp/env` environment naming context for each Java EE component based on the definition contents of the deployment descriptor file in the Java EE component.

To improve general application versatility, it is recommended that the environment naming context is used.

For details on the characteristics for each, refer to "[2.14.1 Naming Service](#)" and "[2.14.2 Environment Naming Context](#)". For details on the differences in the specifications, refer to "[2.14.3 Differences in Specifications between Naming Service and Environment Naming Context](#)".

Hierarchical Object Management

The JNDI service provider manages objects hierarchically. For example, when an object is registered for the JNDI name "jdbc/MyDS", the "jdbc" part is called a sub context, and an object with the name "MyDS" is managed in the sub context. Sub contexts with multiple hierarchies, such as "jdbc/MyCmp/MyDS", can also be held.

The JNDI name must be unique within the sub context. Additionally, object registration will fail if the sub context name and the real object name are duplicated, even if the JNDI name has an alias.

To refer to an object in the application, generally the JNDI name is specified and then the object reference is obtained. As another method of object reference, since the object is managed hierarchically as shown above the object can also be referenced from the sub context in stages. For example, when the JNDI name is "jdbc/MyDS", the sub context (the `javax.naming.Context` object) is obtained by executing the JNDI API lookup method with the name "jdbc". Objects registered for the sub context can also be obtained if the lookup method is executed with the name "MyDS".

2.14.1 Naming Service

When the IJServer cluster is started, resources defined in the IJServer cluster or deployed Enterprise JavaBeans are registered in the naming service. For example, when JDBC resources are defined with the JNDI name "jdbc/Symfo", an object is registered in the naming service with the name "jdbc/Symfo". When the name "jdbc/Symfo" is specified and the JNDI lookup method executed, the registered object can be obtained by the application. For this reason, JNDI names defined in the IJServer cluster must be unique.

This section explains the following:

- [Objects Registered in the Naming Service](#)
- [JNDI Names for the Enterprise JavaBean Used for Remote Calls](#)
- [Connecting to the Remote Server Naming Service from the Client](#)
- [Updating the Naming Service from the JNDI API](#)
- [JNDI Browser](#)

Objects Registered in the Naming Service

Objects that are registered in the naming service are as follows.

Reference object	Name specified in the JNDI lookup method
Enterprise JavaBean used for remote calls	Refer to " JNDI Names for the Enterprise JavaBean Used for Remote Calls ".
JDBC resources	This is the JNDI name specified when the JDBC resource is defined.
JMS connection factory	This is the JNDI name specified when the JMS connection factory is defined
JMS destination	This is the JNDI name specified when the JMS destination is defined.

Reference object	Name specified in the JNDI lookup method
Connector resources	This is the JNDI name specified when the connector resource is defined.
Managed object resources	This is the JNDI name specified when the managed object resource is defined.
Custom resources	This is the JNDI name specified when the custom resource is defined.
External resources	This is the JNDI name specified when the external resource is defined.

Note

- The Enterprise JavaBean used for local calls and web service reference are not managed by the IJServer cluster naming service. To use these objects, either the environment naming context or DI must be used.
- The JavaMail session should not be referenced from the naming service because the javax.mail.Session object is not returned. To use JavaMail sessions, the environment naming context should be used.

JNDI Names for the Enterprise JavaBean Used for Remote Calls

JNDI names for the Enterprise JavaBean used for remote calls are determined based on the following order of priority.

The Home/Remote interface or EJB3.0 remote business interface is defined in the Enterprise JavaBean used for remote calls. To call the Enterprise JavaBean from the client, an object determined by the following JNDI name should be obtained and the interface method called for that object.

1. [Defining the Interstage deployment descriptor \(sun-ejb-jar.xml\) file](#)
2. [Defining the deployment descriptor \(ejb-jar.xml\) file](#)
3. [Specifying the mappedName attribute of the @Stateless/@Stateful annotation](#)
4. [Interface names](#)

Based on the JNDI name that was determined shown above, objects with the following names are registered in the naming service.

Name	Explanation
JNDI name	In EJB3.0 or later, objects for the business interface are registered. In EJB2.x or earlier, objects for the Home interface are registered. This name is normally used.
JNDI name#business interface name	This is the JNDI name for each business interface. If there are multiple remote business interfaces, each interface method is called by this name separately. For details, refer to " JNDI Names for Multiple Remote Business Interfaces ".
JNDI name__3_x_Internal_RemoteBusinessHome__	This is registered in EJB3.0 or later. It should not be used from an application because it is used for internal control.

The methods used to specify each name are explained below.

1. [Defining the Interstage deployment descriptor \(sun-ejb-jar.xml\) file](#)

The JNDI name is specified in the jndi-name tag of the Interstage deployment descriptor (sun-ejb-jar.xml) file in the target Enterprise JavaBean.

Example of what is described:

```
<ejb>
  <ejb-name>CartBean</ejb-name>
```

```
<jndi-name>Cart</jndi-name>
</ejb>
```

2. Defining the deployment descriptor (ejb-jar.xml) file

The JNDI name is specified in the mapped-name tag of the deployment descriptor (ejb-jar.xml) file.

This can be used in Enterprise JavaBeans of EJB 3.0 or later.

Example of what is described:

```
<enterprise-beans>
  <session>
    <ejb-name>CartBean</ejb-name>
    <mapped-name>Cart</mapped-name>
    ...
  </session>
</enterprise-beans>
```

3. Specifying the mappedName attribute of the @Stateless/@Stateful annotation

The JNDI name is specified in the mappedName attribute of the @Stateless/@Stateful annotation in the target Enterprise JavaBean.

Example of what is described:

```
@Stateless(mappedName="Cart")
public class CartBean implements CartObject { ... }
```

4. Interface names

If none of the above is specified, the default JNDI name is determined by the definition of the target Enterprise JavaBeans interface according to the logic shown below.

Definition of the Home/Remote interface	Total number of EJB3.0 or later remote business interfaces	Default JNDI name	Example
None	1	Full package name of the remote business interface	com.mycompany.CartBusiness
None	2 or higher	None (*1)	None
Yes	0	Full package name of the Home interface	com.mycompany.CartHome
Yes	1 or higher	None (*2)	None
None	0	None	None

*1)

The JNDI name must be defined. When the object is actually obtained from the client, the JNDI name that is used for each interface is different. For details, refer to "[JNDI Names for Multiple Remote Business Interfaces](#)".

Note: If the JNDI name is not defined, the JNDI name is recognized as a space character (a character string with a length of 0). For this reason, an object called "# interface name" or "__3_x_Internal_RemoteBusinessHome__" is registered, which may duplicate with another JNDI name. For this reason, the JNDI name must be defined.

*2)

The JNDI name must be defined. When the object is actually obtained from the client, an object for the Home interface is obtained when the defined JNDI name is specified. When a remote business interface is used, the JNDI name that is used for each interface is different. For details, refer to "[JNDI Names for Multiple Remote Business Interfaces](#)".

Note: If the JNDI name is not defined, an error will occur when an application is started, and the application cannot be called. The JNDI name must be defined.

JNDI Names for Multiple Remote Business Interfaces

When there are multiple remote business interfaces in the Enterprise JavaBean, the JNDI name that is used for each interface is different. Add a hash mark ("#") to the end of the JNDI name specified in the Enterprise JavaBean to specify the interface name that is used. For example, in the Enterprise JavaBean in which `com.ejb.CartBusiness1` and `com.ejb.CartBusiness2` are defined as remote business interfaces, `Cart` is specified as the JNDI name. In this case, the JNDI name is specified as follows.

```
InitialContext ic = new InitialContext();
CartBusiness1 bean1 = (CartBusiness1) ic.lookup("Cart#com.ejb.CartBusiness1");
CartBusiness2 bean2 = (CartBusiness2) ic.lookup("Cart#com.ejb.CartBusiness2");
```

Access to a Remote Server Enterprise JavaBean from Enterprise JavaBean or Servlet/JSP

Enterprise JavaBean or Servlet/JSP normally accesses the naming service on the same process. For access to an Enterprise JavaBean registered in the naming service of another process or a remote server, the JNDI name must be linked to the reference name for lookup using the environment naming context. For details, refer to "2.14.2 Environment Naming Context".

Connecting to the Remote Server Naming Service from the Client

The remote server naming service can be accessed by the client via IIOP communication and objects managed by the naming service can be referenced. Configure the IIOP communication environment settings and tuning parameter settings for remote connection to the naming service. Additionally, the connection destination host name and IIOP port number must be set in the client. For details on the method that is used to set the connection destination, refer to "Setting the JNDI Environment" in the "Java EE Application Operation" chapter.

Updating the Naming Service from the JNDI API

Naming service information can be updated (any object can be registered or deleted) from the application by executing the JNDI API `bind` method or `unbind` method. Note the following, however.

- When an object is registered, it is only enabled in the naming service of the process that has been registered. It is not registered in the naming service of other processes in the IJServer cluster.
- If the process in which the object is registered is stopped, the registered object is deleted. The object must be registered again after the process is restarted.
- Objects registered in the container should not be deleted nor should the name be changed as this may cause a malfunction.

JNDI Browser

The list of JNDI names for objects registered in the naming service can be referenced using the JNDI browser of the Interstage Java EE Admin Console or the `asadmin` command `list-jndi-entries` subcommand.

If the Interstage Java EE Admin Console is used, expand the "IJServer cluster" node of the tree and select [JNDI browser] from the window in which the target server instance is selected. The following can be checked when the object registered in the naming service is selected in the displayed JNDI tree using the browser.

Item	Contents
Name	The JNDI name is displayed.
Class name	The class name of the registered object is displayed. The following are displayed using the selected object. <ul style="list-style-type: none">- For sub contexts, the following is displayed in the class name. <code>com.sun.enterprise.naming.TransientContext</code>- For reference information about objects, the following is displayed. If this object executes the JNDI API from a remote client, JNDI service provider generates the actual object from the reference information obtained from the server and returns it. For details, refer to "javax.naming.Reference" in the Java documentation at the Oracle (Sun) website. <code>javax.naming.Reference</code>- In all other cases, the actual object is registered in the naming service and the object class name is displayed.

Item	Contents
Target	<p>The target (IJSERVER cluster name or "server") for which the resources are valid is displayed. This is not displayed when the following are selected, however.</p> <ul style="list-style-type: none"> - Sub context - Enterprise JavaBean object used for remote calls - Objects registered by the container automatically - Objects registered in applications



Note

Objects (such as UserTransaction) that are used by the system, applications (ejb/mgmt), and resources to which __pm has been added are also displayed.

2.14.2 Environment Naming Context

The naming service is a mechanism that is used to manage objects in the system centrally with a unique name. To improve general versatility, however, Java EE provides the `java:comp/env` environment naming context that manages objects for each Java EE component based on the definition contents of the deployment descriptor file of the Java EE component.

This section explains the following:

- [Benefits of the Environment Naming Context](#)
- [Relationship Between the Naming Service and the Environment Naming Context](#)
- [Objects that can be Referenced by the Environment Naming Context](#)
- [Mapping the Reference Name and the JNDI Name](#)

Benefits of the Environment Naming Context

The correspondence between the reference name (logical name) defined in the deployment descriptor file and the JNDI name (physical name) can be defined in the Interstage deployment descriptor file. In the Java EE component for which this correspondence is defined, an object of the JNDI name that corresponds to the reference name can be looked up by specifying the reference name and executing the lookup method. The environment naming context has the following benefits as the corresponding relationship between the reference name and the JNDI name can be defined for each Java EE component and the environment naming context is independent.

Development is possible without the need to be aware of the actual environment

The Java EE component can be developed without the need to recognize the actual JNDI name that is used in the operation. For this reason, once the Java EE component is created it can be deployed to any environment without modifying the application or changing the definition file.

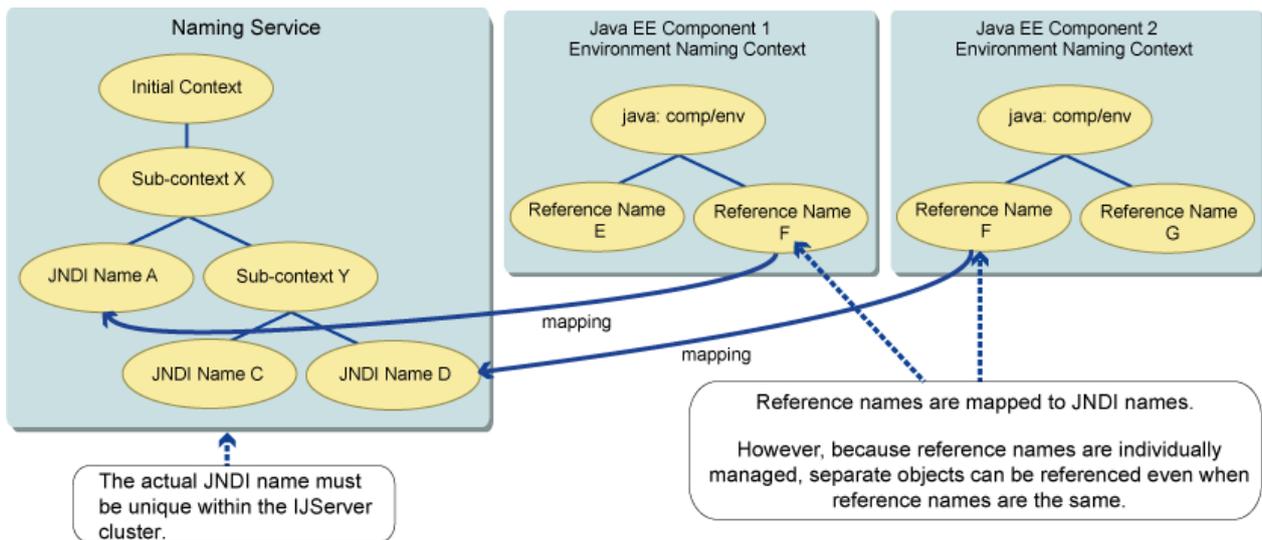
Applications can be developed independently

Even if the same reference name is used between Java EE components, separate objects can be obtained in each Java EE component using the lookup method simply by editing the definition. There is no need to modify the application. For this reason, applications can be developed without the need to be aware of concerns over the duplication of Java EE component names.

Relationship Between the Naming Service and the Environment Naming Context

This section explains the relationship between the naming service and the environment naming context.

In the example shown in the figure below, Java EE component1 and Java EE component2 exist on the IJSERVER cluster. Reference name "F" is defined in both Java EE component1 and Java EE component2, however each Java EE component can reference separate objects because of the correspondence that is set for Java EE component1 reference name "F" to JNDI name "X/A" and Java EE component2 reference name "F" to JNDI name "X/Y/D".



Objects that can be Referenced by the Environment Naming Context

The objects that can be referenced by the environment naming context are shown in the table below. The corresponding annotations are also described here.

Reference object	Name specified in the JNDI lookup method	Annotation		
Information inserted in the annotation	Refer to "Reference to Information Inserted in the Annotation using JNDI".	-		
Application environment entry	java:comp/env/[environment entry name]	-		
Enterprise JavaBean used for remote calls	java:comp/env/[EJB reference name]	@EJB		
Enterprise JavaBean used for local calls	java:comp/env/[EJB local reference name]	@EJB		
JDBC resources	java:comp/env/[resource reference name]	@Resource		
JavaMail session				
URL connection factory				
JMS connection factory				
Connector resources				
Custom resources				
External resources				
JMS transmission destination			java:comp/env/[Destination reference name]	@Resource
Managed object resources			java:comp/env/[resource environment reference name]	@Resource
JPA entity manager factory	java:comp/env/[persistence unit reference name]	@PersistenceUnit		
Container manager JPA entity manager	java:comp/env/[persistence context reference name]	@PersistenceContext		
UserTransaction	java:comp/UserTransaction	@Resource		
TransactionSynchronizationRegistry	java:comp/TransactionSynchronizationRegistry	@Resource		
ORB	java:comp/ORB	@Resource		
HandleDelegate	java:comp/HandleDelegate	@Resource		

Reference object	Name specified in the JNDI lookup method	Annotation
EJB timer service	java:comp/TimerService	@Resource
EJB context	java:comp/EJBContext	@Resource

The correspondence for the above reference names and the deployment descriptor file definition items are described in the following table:

Environment entry and reference name	Deployment descriptor file definition item
Environment entry name	The <env-entry-name> tag value of the <env-entry> tag
EJB reference name	The <ejb-ref-name> tag value of the <ejb-ref> tag
EJB local reference name	The <ejb-ref-name> tag value of the <ejb-local-ref> tag
Resource reference name	The <res-ref-name> tag value of the <resource-ref> tag
Destination reference name	The <message-destination-ref-name> tag value of the <message-destination-ref> tag
Resource environment reference name	The <resource-env-ref-name> tag value of the <resource-env-ref> tag
Persistence unit reference name	The <persistence-unit-ref-name> tag value of the <persistence-unit-ref> tag
Persistence context reference name	<persistence-context-ref-name> tag value of the <persistence-context-ref> tag

Reference to Information Inserted in the Annotation using JNDI

The information that was inserted in the annotation is registered. For example, when the Java EE annotation is specified in the MyApp class field of the com.example package and the myDatabase field, the value that was inserted in the annotation can be obtained using the name "java:comp/env/com.example.MyApp/myDatabase".

Mapping the Reference Name and the JNDI Name

The correspondence between the reference name (logical name) defined in the deployment descriptor file and the JNDI name (physical name) can be defined in the Interstage deployment descriptor file. In the Java EE component for which this correspondence is defined, an object of the JNDI name that corresponds to the reference name can be looked up by specifying the reference name and executing the lookup method. This section explains the correspondence between the reference name defined in the deployment descriptor file and the actual JNDI name registered in the naming service.

- [EJB Reference Name](#)
- [EJB Local Reference Name](#)
- [Persistence Unit Reference Name](#)
- [Persistence Context Reference Name](#)
- [Resource Reference Name](#)
- [Destination Reference Name](#)
- [Resource Environment Reference Name](#)

EJB Reference Name

The JNDI name that corresponds to the reference name is determined according to the following priority.

1. [JNDI name of the Interstage deployment descriptor file defined for the EJB reference name](#)
2. [mapped-name of the deployment descriptor file defined for the EJB reference name](#)
3. [ejb-link of the deployment descriptor file defined for the EJB reference name](#)
4. [Interface name of the deployment descriptor file defined for the EJB reference name](#)

The method that is used to define each is explained below.

1. JNDI name of the Interstage deployment descriptor file defined for the EJB reference name

When the reference name and the JNDI name are defined in the Interstage deployment descriptor file, a correspondence is established with the JNDI name that was defined.

```
<ejb-ref>
  <ejb-ref-name>ejb/MyEjb</ejb-ref-name>
  <jndi-name>Cart</jndi-name>
</ejb-ref>
```

When an Enterprise JavaBean that is registered in another process or in a remote server naming service is accessed, the host name of the other process or remote server, the IIOP listener port number, and the JNDI name must be specified according to the specification established for Interoperable Naming Service ("INS"). Only one host name and port number can be specified. Since load balancing and failover are not used, it is recommended that the J2EE runtime environment is used to access an Enterprise JavaBean been registered in the naming service of another process or remote server. For details on INS, refer to the COS Naming specification. The name is specified using the following format:

corbaname:iiop:host name:port number#JNDI name

If the port number was omitted, the default port number(2809) defined in the CORBA specifications will be used instead. The default value IIOP listener port number (23700) will not be used, so you must specify a port number.

The port number can be checked in the definition item below. It can also be checked using the Interstage Java EE Admin Console.

- \${clusterName_instanceName_configName}.iiop-service.iiop-listener.\${iiop-listener-id}.port

In the initial setting, this setting references the IIOP_LISTENER_PORT system property, therefore the port number is set in the following:

- \${instanceName}.system-property.IIOP_LISTENER_PORT



Example

Example: The host name is myHost, the port number is 23700, and the JNDI name is Cart.

corbaname:iiop:myHost:23700#Cart

Define this information in the Interstage deployment descriptor file as follows.

```
<ejb-ref>
  <ejb-ref-name>ejb/MyEjb</ejb-ref-name>
  <jndi-name>corbaname:iiop:myHost:23700#Cart</jndi-name>
</ejb-ref>
```



Note

If the host name specified in corbaname URL and the IIOP listener host name (network address) are not exactly the same, a connection will be created for each host name individually.

For this reason, the number of connections that are used will double compared to when the host name specified in corbaname URL and the IIOP listener host name are a perfect match.

The IIOP listener host name can be checked from the Interstage Java EE Admin Console or the following definition item:

\${clusterName_instanceName_configName}.iiop-service.iiop-listener.\${iiop-listener-id}.address

The initial setting is "0.0.0.0" and the IP address is set as the IIOP listener host name.

2. mapped-name of the deployment descriptor file defined for the EJB reference name

If the mapped-name tag is specified in the EJB reference (ejb-ref tag) of the deployment descriptor file, a correspondence is established with the JNDI name that was specified.

This can be used in Enterprise JavaBeans of EJB 3.0 or later.

```
<ejb-ref>
  <ejb-ref-name>ejb/MyEjb</ejb-ref-name>
  <remote>com.ejb1.CartRemote</remote>
  <mapped-name>Cart</mapped-name>
</ejb-ref>
```

When an Enterprise JavaBean that is registered in another process or in a remote server naming service is accessed, the JNDI name must be specified according to the specification established for Interoperable Naming Service ("INS") in the same way as for 1.

3. ejb-link of the deployment descriptor file defined for the EJB reference name

When another Enterprise JavaBean is called from the Java EE component, the correspondence is not required if the ejb-link is defined when the EJB reference (ejb-ref tag) of the deployment descriptor file is defined, even if the reference name and JNDI name are different. To call an Enterprise JavaBean that is included in the same ejb-JAR file, specify ejb-name for the Enterprise JavaBean that calls ejb-link as follows.

```
<ejb-ref>
  <ejb-ref-name>ejb/MyEjb</ejb-ref-name>
  <remote>com.ejb1.CartRemote</remote>
  <ejb-link>CartBean</ejb-link>
</ejb-ref>
```

Additionally, to call an Enterprise JavaBean that is included in a different ejb-jar within the same ear, define as shown below. Define the relative path of the ejb-JAR file that is called for the ejb-JAR file that makes the call (this path is "ejb1.jar" in the example below), then add a hash mark ("#") to define ejb-name for the Enterprise JavaBean that is called (ejb-name is "CartBean" in the example below).

```
<ejb-ref>
  <ejb-ref-name>ejb/MyEjb</ejb-ref-name>
  <remote>com.acme.FooRemote</remote>
  <ejb-link>ejb1.jar#CartBean</ejb-link>
</ejb-ref>
```

4. Interface name of the deployment descriptor file defined for the EJB reference name

As shown below, the interface name is treated as a JNDI name by specifying the interface name in the deployment descriptor file <ejb-ref><home> and <ejb-ref><remote> tags.

Interface name specified in the <ejb-ref><home> tags	Interface name specified in the <ejb-ref><remote> tags	JNDI name
None	Yes	Remote interface name (*1)
Yes	Yes	Home interface name
Yes	None	Home interface name
None	None	1. or 2. must be defined

*1) The ejb-jar reference is for EJB3.0 or later. In EJB3.0 or later, it is a condition that the Home interface is not defined.

EJB Local Reference Name

The EJB local interface is not registered in the naming service, so there is no JNDI name. For this reason, objects are determined according to the following order of priority. EJB local reference can only be used to reference an EJB application on an identical Java VM process.

1. [ejb-link of the deployment descriptor file defined for the EJB local reference name](#)
2. [Interface name of the deployment descriptor file defined for the EJB local reference name](#)

This section explains how to define the following:

1. ejb-link of the deployment descriptor file defined for the EJB local reference name

When another Enterprise JavaBean is called from the Java EE component, the Enterprise JavaBean that is called can be specified by defining ejb-link of the deployment descriptor file when the EJB local reference (ejb-local-ref tag) is defined. To call an Enterprise JavaBean that is included in the same ejb-JAR file, specify ejb-name for the Enterprise JavaBean that calls ejb-link as follows.

```
<ejb-local-ref>
  <ejb-ref-name>ejb/CartEJB</ejb-ref-name>
  <local>com.mycompany.CartLocal</local>
  <ejb-link>CartBean</ejb-link>
</ejb-local-ref>
```

Additionally, to call an Enterprise JavaBean that is included in a different ejb-jar, define as shown below. Define the relative path of the ejb-jar file that is called from the ejb-jar file that makes the call, then add a hash mark ("#") to ejb-name for the Enterprise JavaBean that is called.

```
<ejb-local-ref>
  <ejb-ref-name>ejb/CartEJB</ejb-ref-name>
  <local>com.mycompany.CartLocal</local>
  <ejb-link>CartEjb.jar#CartBean</ejb-link>
</ejb-local-ref>
```

2. Interface name of the deployment descriptor file defined for the EJB local reference name

As shown below, the reference object is determined by specifying the LocalHome interface name in the deployment descriptor file <ejb-local-ref><local-home> tags, and the Local interface name in the deployment descriptor file <ejb-local-ref><local> tags. The Enterprise JavaBeans reference must be included in the same ejb-JAR file. When an Enterprise JavaBeans that is included in a different ejb-jar is called, definition method 1. must be used.

LocalHome interface	Local interface	Reference object
None	Yes	The Enterprise JavaBeans (*1) that has the specified Local interface
Yes	Yes	The Enterprise JavaBeans that has the specified LocalHome interface
Yes	None	The Enterprise JavaBeans that has the specified LocalHome interface
None	None	Definition method 1. must be used

*1) The ejb-jar reference is for EJB3.0 or later. In EJB3.0 or later, the LocalHome interface is not defined.

Persistence Unit Reference Name

The object for the JNDI name specified in the persistence-unit-name tag defined in the deployment descriptor file is looked up. If the persistence-unit-name tag is omitted, the default persistence unit is looked up and returned to the entity manager factory.

```
<persistence-unit-ref>
  <description>
    Persistence unit for the inventory management application.
  </description>
  <persistence-unit-ref-name>
    persistence/InventoryAppDB
  </persistence-unit-ref-name>
  <persistence-unit-name>
    InventoryManagement
  </persistence-unit-name>
</persistence-unit-ref>
```

Persistence Context Reference Name

The object for the JNDI name specified in the persistence-unit-name tag defined in the deployment descriptor file is looked up. If the persistence-unit-name tag is omitted, the default persistence unit is looked up and returned to the entity manager.

```

<persistence-context-ref>
  <description>
    Persistence context for the inventory management application.
  </description>
  <persistence-context-ref-name>
    persistence/InventoryAppMgr
  </persistence-context-ref-name>
  <persistence-unit-name>
    InventoryManagement
  </persistence-unit-name>
</persistence-context-ref>

```

Resource Reference Name

The JNDI name is determined based on the following order of priority. An error will occur if the following are not defined.

1. JNDI name of the Interstage deployment descriptor file defined for the resource reference name
2. mapped-name of the deployment descriptor file value defined for the resource reference name

This section explains how to define the following:

1. JNDI name of the Interstage deployment descriptor file defined for the resource reference name

When the resource reference name and the JNDI name are defined in the Interstage deployment descriptor file, a correspondence is established with the JNDI name that was defined. To establish a correspondence for the reference name (jdbc/symfo) with the JNDI name (myDS), define the reference name and JNDI name in the Interstage deployment descriptor file as follows.

```

<resource-ref>
  <res-ref-name>jdbc/symfo</res-ref-name>
  <jndi-name>myDS</jndi-name>
</resource-ref>

```

2. mapped-name of the deployment descriptor file value defined for the resource reference name

If the mapped-name tag is specified in the resource reference (resource-ref tag) of the deployment descriptor file, the specified JNDI name object can be obtained using the lookup method.

This can be used in applications of Java EE 5 or later.

```

<resource-ref>
  <res-ref-name>jdbc/symfo</res-ref-name>
  <res-type>javax.sql.DataSource</res-type>
  <res-auth>Container</res-auth>
  <mapped-name>myDS</mapped-name>
</resource-ref>

```



Note

When the res-type tag of the resource-ref tag is "java.net.URL", the jndi-name tag value that corresponds to the reference name of the Interstage deployment descriptor file or the URL used for the mapped-name tag of the deployment descriptor file is defined. The java.net.URL object that is generated according to this defined URL can be obtained using the lookup method. The URL is specified as follows.

```

<resource-ref>
  <res-ref-name>url/MyURL</res-ref-name>
  <jndi-name>http://www.fujitsu.com/</jndi-name>
</resource-ref>

```

Destination Reference Name

The JNDI name is determined based on the following order of priority.

1. [JNDI name of the Interstage deployment descriptor file defined for the Destination link](#)
2. [mapped-name of the deployment descriptor file value defined for the Destination link](#)
3. [JNDI name of the Interstage deployment descriptor file defined for the Destination reference name](#)
4. [mapped-name of the deployment descriptor file value defined for the Destination reference name](#)

This section explains how to define the following:

1. JNDI name of the Interstage deployment descriptor file defined for the Destination link

The message-destination-link tag can be defined in the message-destination-ref tag that defines the Destination reference name as follows. The value specified in this tag is called the "Destination link".

This can be used in applications of J2EE 1.4 or later.

```
<message-destination-ref>
  <message-destination-ref-name>jms/myQueue</message-destination-ref-name>
  <message-destination-type>javax.jms.Queue</message-destination-type>
  <message-destination-usage>Produces</message-destination-usage>
  <message-destination-link>myDestination</message-destination-link>
</message-destination-ref>
...
<message-destination>
  <message-destination-name>myDestination</message-destination-name>
</message-destination>
```

If this Destination link was defined, the JNDI name Destination defined in the Interstage deployment descriptor file for message-destination-name of the link destination can be obtained using the lookup method.

```
<message-destination>
  <message-destination-name>myDestination</message-destination-name>
  <jndi-name>myQueue</jndi-name>
</message-destination>
```

2. mapped-name of the deployment descriptor file value defined for the Destination link

If the Destination link of the deployment descriptor file was defined, the specified JNDI name Destination can be obtained using the lookup method when the mapped-name tag is specified in message-destination-name of the link destination.

This can be used in applications of Java EE 5 or later.

```
<message-destination-ref>
  <message-destination-ref-name>jms/myQueue</message-destination-ref-name>
  <message-destination-type>javax.jms.Queue</message-destination-type>
  <message-destination-usage>Produces</message-destination-usage>
  <message-destination-link>myDestination</message-destination-link>
</message-destination-ref>
...
<message-destination>
  <message-destination-name>myDestination</message-destination-name>
  <mapped-name>myQueue</mapped-name>
</message-destination>
```

3. JNDI name of the Interstage deployment descriptor file defined for the Destination reference name

If the Destination link was not defined, the JNDI name Destination defined in the Interstage deployment descriptor file for the Destination reference name can be obtained using the lookup method.

```
<message-destination-ref>
  <message-destination-ref-name>jms/myQueue</message-destination-ref-name>
  <jndi-name>myQueue</jndi-name>
</message-destination-ref>
```

4. mapped-name of the deployment descriptor file value defined for the Destination reference name

If the Destination link of the deployment descriptor file was not defined, the specified JNDI name Destination can be obtained using the lookup method when the Destination reference name mapped-name tag of Destination reference (message-destination-ref tag) is specified.

This can be used in applications of Java EE 5 or later.

```
<message-destination-ref>
  <message-destination-ref-name>jms/myQueue</message-destination-ref-name>
  <message-destination-type>javax.jms.Queue</message-destination-type>
  <message-destination-usage>Produces</message-destination-usage>
  <mapped-name>myQueue</mapped-name>
</message-destination-ref>
```

Resource Environment Reference Name

The JNDI name is determined based on the following order of priority.

1. JNDI name of the Interstage deployment descriptor file defined for the resource environment reference name
2. mapped-name value of the deployment descriptor file defined for the resource environment reference name

This section explains how to define the following:

1. JNDI name of the Interstage deployment descriptor file defined for the resource environment reference name

When the resource environment reference name and the JNDI name are defined in the Interstage deployment descriptor file, a correspondence is established with the JNDI name that was defined. To establish a correspondence for the reference name (eis/myAO) with the JNDI name (myAO), define the reference name and JNDI name in the Interstage deployment descriptor file as follows.

```
<resource-env-ref>
  <resource-env-ref-name>eis/myAO</resource-env-ref-name>
  <jndi-name>myAO</jndi-name>
</resource-env-ref>
```

2. mapped-name value of the deployment descriptor file defined for the resource environment reference name

If the mapped-name tag is specified in the resource environment reference (resource-env-ref tag) of the deployment descriptor file, the object of the specified JNDI name can be obtained using the lookup method.

This can be used in applications of Java EE 5 or later.

```
<resource-env-ref>
  <resource-env-ref-name>eis/myAO</resource-env-ref-name>
  <resource-env-ref-type>com.resource.AOType</resource-env-ref-type>
  <mapped-name>myAO</mapped-name>
</resource-env-ref>
```

2.14.3 Differences in Specifications between Naming Service and Environment Naming Context

This section describes the differences in specifications between the naming service and the environment naming context.

Item	Naming service	Environment naming context
Namespace	The object is managed in the namespace using the JNDI name. Example: Name specified in the lookup method lookup ("jdbc/empDB")	The object is managed in the logical namespace that has the prefix java:comp/env. Example: Name specified in the lookup method lookup("java:comp/env/jdbc/empDB")
Unique name	The object is managed using a unique name in the IJServer cluster.	For EJB components, the object is managed using a unique name for each included Enterprise JavaBean. For other Java EE components, the

Item	Naming service	Environment naming context
		object is managed using a unique name for each component.
Defining the reference object	The object can be referenced by specifying the JNDI name in the JNDI API.	To look up an object with the JNDI API, the reference name of the object for lookup must be defined in the deployment descriptor file.
Context operation	Reference (such as lookup) and update (such as bind) are possible.	Only reference (such as lookup) is possible.
Defining the correspondence relationship	The correspondence relationship cannot be defined. If the resource name specified in the JNDI API does not exist in the naming service, an error will occur.	The correspondence relationship between the name that is looked up in the application and the actual JNDI name can be defined.
Objects that can be referenced	<ul style="list-style-type: none"> - Enterprise JavaBean used for remote calls - JDBC resources - JMS connection factory - Connector resources - Custom resources - External resources - JMS destination - Managed object resources 	<ul style="list-style-type: none"> - Enterprise JavaBean used for remote calls - JDBC resources - JavaMail session - JMS connection factory - Connector resources - Custom resources - External resources - JMS destination - Managed object resources - JPA entity manager factory - Container manager JPA entity manager - Information inserted in the annotation - Application environment entry - Enterprise JavaBean used for local calls - URL connection factory - UserTransaction - TransactionSynchronizationRegistry - ORB - HandleDelegate - EJB timer service - EJB context

2.14.4 Other Naming Services Linkage Feature

In the IJServer cluster JNDI service settings, another server instance host name and IIOP listener port number can be specified in the external Naming Service URL. If this is specified, even if Enterprise JavaBeans running in another server instance are called, they can be called by specifying only the JNDI name. This feature is called the "Other Naming Services Linkage Feature". By specifying IIOP listener information for the server instance that runs the EJB Dispatcher in the host name and IIOP listener port number that are specified in the external Naming Service URL, load balancing using the EJB dispatch feature will also be possible when other server instance EJB applications are called.

Using the Other Naming Services Linkage Feature, resources other than Enterprise JavaBeans resources (such as JDBC, JMS, connector) can also be obtained from an external Naming Service.

Connection Method	Object reference cache	Load balancing method specified		
		The load balancing feature is not used	Load balancing using the EJB Dispatcher	Load balancing using the GMS
Connections when the endpoint has been specified in the client	Disabled	No	Yes	Yes
	Enabled	No	Yes	No (*1)
Using the INS format to specify the JNDI name together with the host name and IIOP listener port number of the server instance for the Interstage deployment descriptor EJB reference name (<ejb-ref> tag)	Disabled	No	Yes	No (*2)
	Enabled	No	Yes	No (*2)
When the Other Naming Services Linkage Feature is used	Disabled	No	Yes	No (*2)
	Enabled	No	Yes	No (*2)

*1) In load balancing using the GMS, the connection destination server instance is changed when the lookup method is executed, so load balancing is realized by obtaining the object reference again. For this reason, when the object reference that was obtained is reused, load balancing will cease to operate, so this feature should not be used.

*2) Enquiries are not made to the GMS. Access is attempted in the order items were specified in the connection destination that was specified (top first), and an attempt is made to call the server instance Enterprise JavaBeans that were able to be accessed. For this reason, load balancing is not used.

- The object reference cache should not be used in the cases that follow.

Condition	Explanation
The reference Enterprise JavaBeans or various resources are redeployed or undeployed	When the object reference cache feature is used, the cache will be retained until the server instance stops. For this reason, inconsistencies may occur even if the referenced Enterprise JavaBeans or various resources are redeployed or undeployed since the cache is retained.
The external Naming Service URL is updated	When the object reference cache feature is used, the cache will be retained until the server instance stops. Even if the external Naming Service URL is changed to another URL, inconsistencies may occur where the object reference that was obtained from the previously set external Naming Service URL that was cached, is returned.

2.15 Transaction Control

The transaction types that can be used with Java EE components are as follows:

- Transaction management function that uses JTA
 - Local transactions
 - Global transactions
- Transaction management function provided by the resource manager
 - Resource manager transactions

Transactions controlled using JTA are called "JTA transactions", which are separated into local transactions and global transactions, depending on the operation mode. For details, refer to "[2.15.1 Local Transactions and Global Transactions](#)".

The target transaction management function provided by the resource manager (for example, when the resource manager is JDBC, this is the `java.sql.Connection` interface `commit` method) can also be used directly. If a resource manager transaction is used, however, the functions explained in this chapter cannot be used.

2.15.1 Local Transactions and Global Transactions

JTA transactions consist of local transactions and global transactions. Global transactions are required to guarantee the consistency of processing for multiple resources. However, 2-phase commit protocol requires performance overheads. It is therefore recommended that a single resource should be designed and local transactions should be used as much as possible.

Local transactions

Only one resource is included in local transactions. The active range of the transaction is managed locally by the resource itself. Only 1-phase commit protocol is used for local transactions. Additionally, transaction control is possible only in one process.

Global transactions

Multiple resources can be registered in global transactions. For example, a global transaction is used when two databases are used as the work range. Additionally, transaction control is possible between multiple processes. Transaction control is possible between multiple processes.

The 2-phase commit protocol is used for global transactions.

Conditions to Run under Local Transactions

Local transactions must contain one non-XA resource and all Java EE components that participate in the transaction must be executed in one process. The transaction will return an error if multiple non-XA resources are used in one transaction.

Conditions under which JDBC resources are treated as non-XA resources are as follows.

- When `DataSource` classes specified in the JDBC connection pool definition do not implement the `javax.sql.XADataSource` interface
- A type other than the `javax.sql.XADataSource` interface is specified as the resource type in the JDBC connection pool definition, or the resource type is not defined.

Use of Multiple non-XA Resources in the Transaction

The `multi-nonXA-only-supported` property option, that enables the use of multiple non-XA resources in the transaction, is provided.

However, when this feature is used, even if multiple non-XA resources are used in the transaction they will be processed using the 1-phase commit protocol. For this reason, the transaction integrity (atomicity) in each resource access may not be maintained. (There may be a mix of resources that were committed normally and resources that were rolled back because an error occurred.)

This option should only be used to migrate existing systems that use multiple non-XA resources in the transaction to Java EE for the following reasons:

- A database that does not support the use of XA resources was used.
- Non-XA resources were used because the performance will deteriorate if XA resources are used.
- Non-XA resources were used because an indoubt status may occur, and the recovery processing will be complex, if XA resources are used.

Conditions to Run under Global Transactions

If the transaction manages multiple resources or the transaction is managed between multiple processes, a global transaction is used. In the global transaction, only one non-XA resource can be executed if the `use-last-agent-optimization` property is true (this is the default setting). In other cases, they must all be XA resources. For details on the `use-last-agent-optimization` property, refer to "[2.15.3 2-phase Commit Protocol](#)".

If only one XA resource is used in the transaction, it is processed using the 1-phase commit protocol because there is no need to guarantee consistency between resources. In all other cases, it works using the 2-phase commit protocol.

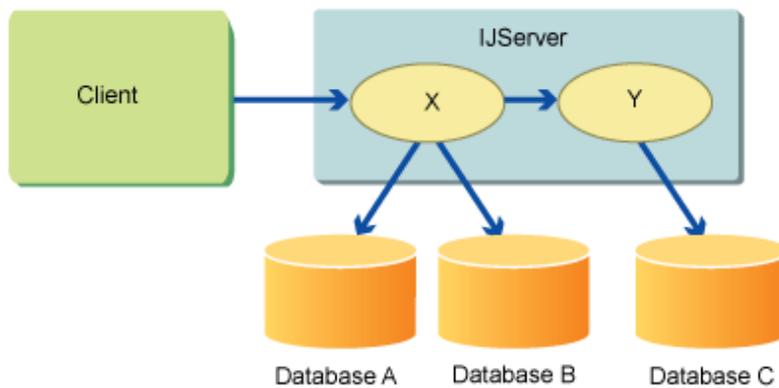
Cases where Global Transaction Control is Required

Global transaction control is required when the following resource accesses occur in the same transaction.

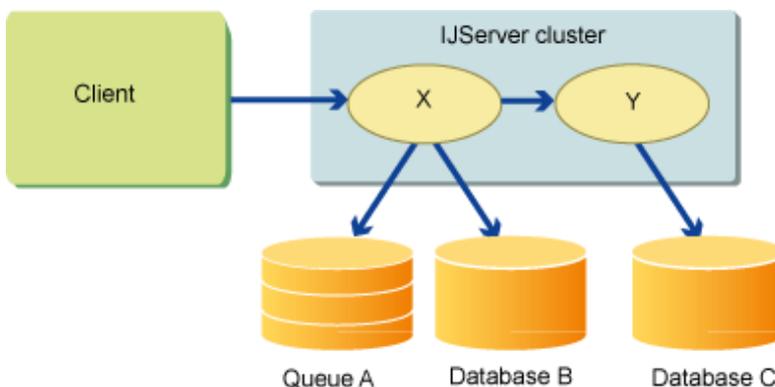
- [Case 1] Access to Multiple Resource Managers
- [Case 2] Access to Received Messages and the Resource Manager
- [Case 3] Access to the Resource Manager between Multiple Processes
- [Case 4] Managing Transaction Control Using the Client

[Case 1] Access to Multiple Resource Managers

Global transaction control is required for access to multiple resource managers in the same transaction. In the example below, there are multiple databases (database A, database B, database C), and each database is accessed from the X and Y Java EE components in the same transaction.

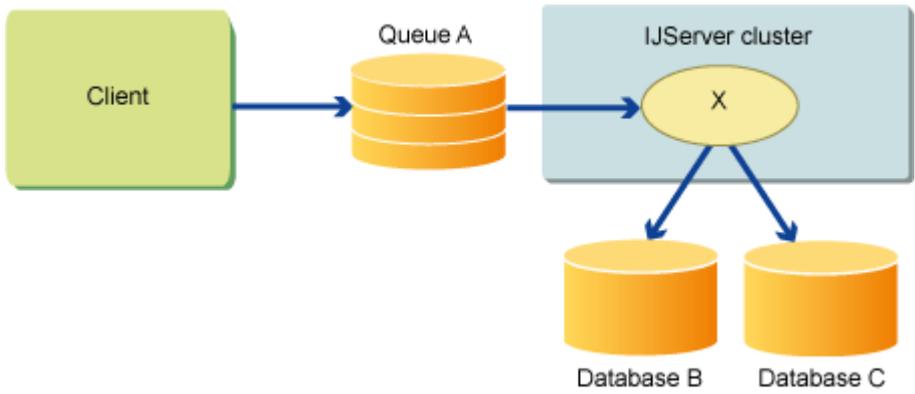


The same applies in the example below, in which the JMS queue (queue A) and databases (database B, database C) are accessed from the X and Y Java EE components in the same transaction.



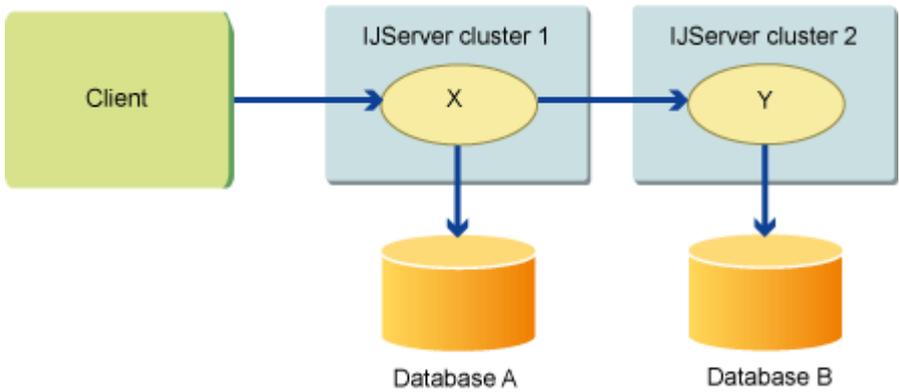
[Case 2] Access to Received Messages and the Resource Manager

Global transaction control is required for performing the receiving of messages and access to the resource manager in the same transaction. In the example below, a message is received from the queue (queue A), and the databases (database B, database C) are accessed from the X Java EE component in the same transaction.



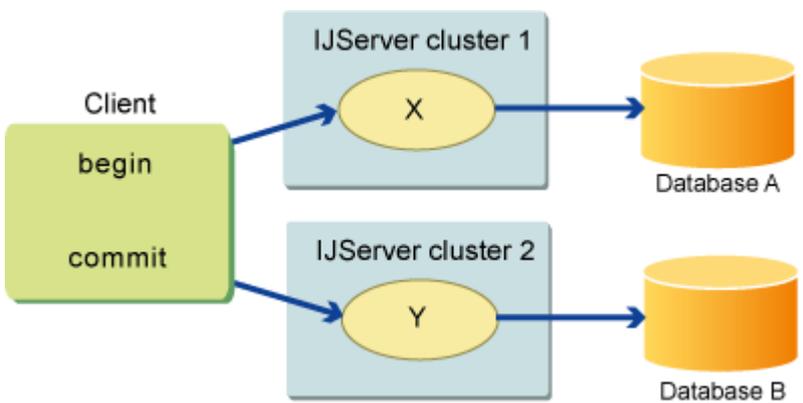
[Case 3] Access to the Resource Manager between Multiple Processes

Global transaction control is required for accessing the resource manager by connecting multiple processes (IJServer cluster). Even in cases where multiple Resource Managers are not accessed, if a process is called in a state where a transaction has been started and the Resource Manager is accessed using another process, the Global Transaction control will be required. In the example below, the database (database A) is accessed from the IJServer cluster1 X Java EE component, and the database (database B) is accessed from the IJServer cluster2 Y Java EE component in the same transaction.



[Case 4] Managing Transaction Control Using the Client

Global transaction control is required for starting transactions in the client that accesses the IJServer cluster when the resource manager in the IJServer cluster is accessed in the same transaction. In the example below, the transaction in the client is started (begin), the database (database A) is accessed from the IJServer cluster1 X Java EE component, and the database (database B) is accessed from the IJServer cluster2 Y Java EE component in the same transaction.



Note

- Since the transaction processing will require load control under heavy load, the architecture should allow for the transaction processing to occur in the server as far as possible.

- In the following cases, in a process that is called in a state where a transaction has been started, the fact that the transaction has been joined will be notified to the process that started the transaction through IIOP communication. Accordingly, when the transaction completion request (commit or rollback) is made to the Transaction Manager, the same transaction completion request will also be notified to each process that has joined the transaction.

For this reason, in the above cases it will be necessary to tune the various settings that are related to IIOP communication after considering the transaction control.

When linking transactions between server instances, add the maximum pool size of the thread pool of the server instance that is called by the server instance that starts the transaction, to the maximum pool size of the thread pool for the server instance that starts the transaction.

If the maximum pool size is insufficient, the threads that are used in business processing will occupy the thread pool and it may not be possible to execute the transaction notice, resulting in a no-response state.

2.15.2 How to Control Transactions

The Java EE component can control transactions using JTA as follows:

- Using the `javax.transaction.UserTransaction` interface or the `javax.transaction.TransactionSynchronizationRegistry` interface.
- Using the EJB container using Container-Managed Transaction.

To control JTA transactions using web applications or client applications, refer to the transaction manager (`javax.transaction.UserTransaction` or `javax.transaction.TransactionSynchronizationRegistry`) using the environment naming context. For details, refer to "[2.14.2 Environment Naming Context](#)". For details on how to use the transaction manager, refer to the JTS/JTA specifications.

To control JTA transactions using EJB applications, there are two methods: one uses the container, and the other uses the EJB application. For details, refer to the EJB specifications.

- Control using the container

Specify Container for the transaction type, and the transaction control method for the transaction attribute.

- Control using the EJB application

Bean is specified for the transaction type, and `javax.transaction.UserTransaction` is obtained from `javax.ejb.EJBContext` and controlled using the EJB application.

2.15.3 2-phase Commit Protocol

2-phase commit protocol is the mechanism that guarantees the consistency of multiple resources registered for global transactions. The 2-phase commit protocol executes the commit processing in two phases and guarantees the consistency. The first phase is called the preparatory phase. The transaction manager checks that the transaction task is ready to commit for each resource manager. The resource manager that can commit the task sends a notice that the commit is possible. After confirming that all resource managers can commit, commit processing is performed for the resource manager. If there is a resource manager that cannot commit during the preparatory phase, the transaction is rolled back.

The Java EE component that requests the transaction does not have to recognize the Interstage 2-phase commit mechanism. 2-phase commit processing is performed by the container automatically if the Java EE component performs the transaction control in the same way as for the local transaction.

In the 2-phase commit protocol, the transaction manager records the progress status of the transaction to guarantee result atomicity when there is a system failure. The log that records the progress status is called the "transaction log". For details, refer to "[2.15.5 Transaction Log](#)".

Use Last Agent Optimization

If true (the default setting) is specified in the `use-last-agent-optimization` property in the transaction service, only one non-XA resource can be used even if multiple resources are used. The preparatory phase is executed for the registered XA resource. The transaction service executes 1-phase commit for the XA resource after receiving a notice that the commit is possible from all XA resources. If 1-phase commit for the non-XA resource was successful, a commit phase is executed for the XA resource. If 1-phase commit for the non-XA resource failed, a rollback is performed for the XA resource.

For details, refer to "Transaction Service Definition Items" in the "List of Definition Items" chapter. Additionally, the transaction service can be set using the `asadmin` command.

Note

When transactions are linked between multiple processes, Use Last Agent Optimization is disabled, so use XA for all resources.

Indoubt Transactions

Atomicity using multiple resources is improved using the 2-phase commit protocol because it performs commit processing for resource managers after confirming that all resource managers can commit. However, after notifying that all resource managers can commit in the preparatory phase a commit phase may fail due to the reasons shown below. In this case, the transaction for which the commit phase failed is called an "indoubt transaction".

- The server machine crashes.
- The network connection with the resource manager is cut off.
- An unexpected error occurs in the product.

The indoubt transaction performs recovery processing according to one of the following methods.

Automatic recovery

For indoubt status transactions, recovery is executed automatically when the IJServer cluster starts up. To automatically recover, select [Restart time] in the Interstage Java EE Admin Console transaction service settings. This will be enabled the next time the IJServer cluster starts up.

In the `asadmin` command set subcommand, set "automatic-recovery" to "true".

For details on the transaction service definitions, refer to "Transaction Service Definition Items" in the "List of Definition Items" chapter.

Manual recovery

Recovery processing of indoubt transactions managed by the transaction manager is executed by clicking the [Transaction recovery] button on the "General information" window. Recovery processing can also be executed using the `asadmin` command `recover-transactions` subcommand.

The procedure for manual recovery of indoubt transactions is explained in the database that supports global transactions. For details, refer to the manual of the database that is used.

Note

In manual recovery processing, indoubt transactions that occurred when the server instance had "running" status are recovered.

If the server instance was restarted, indoubt transactions that occurred before the restart are not recovered. If you want to recover those, then use automatic recovery processing.

When recovery processing is executed, the transaction manager calls the recovery method for the registered XA resource, executes commit or roll back processing for the resources with indoubt status, and recovers the transaction.

2.15.4 Managing Transaction Resources

When transaction control is performed between multiple processes using a global transaction, the transaction ID and each server resource are managed by the process that started the transaction. When a transaction commit request is received from the application, the server that manages the resources sends a commit request to each server using IIOP communication.

2.15.5 Transaction Log

To guarantee result atomicity when there is a system failure, the transaction manager records the transaction progress status in the transaction log. When a system error occurs, the transaction manager can perform recovery processing for transactions in which an error has occurred based on the transaction log information.

The transaction log can be stored in the file system or the database (*1). The log is stored in the file system by default. The transaction log is encrypted because the transaction information may contain business data information.

*1) This version does not support storage of transaction logs in the database.

This section explains the following:

- [Storing the Transaction Log in the File System](#)
- [Storing the Transaction Log in the Database](#) (not supported)
- [Invalidating the Transaction Log](#)

Storing the Transaction Log in the File System

The transaction log is stored in the file system by default. The transaction log can be output to any directory. Define the transaction log storage directory in "transaction log location (tx-log-dir)" of the transaction service definition. For details on the transaction service definitions, refer to "Transaction Service Definition Items" in the "List of Definition Items" chapter.

Storing the Transaction Log in the Database

This version does not support storage of transaction logs in the database.

Invalidating the Transaction Log

To disable the transaction log, the following must be set in the transaction service definition. When the transaction log is disabled, however, if a server instance was restarted because of system trouble or following an operation, recovery processing cannot be used for transactions that occurred before the restart. For this reason, it is not recommended that the transaction log is disabled. Out of consideration for processing performance, the transaction log should only be disabled when processing can be retried when there is a system failure. For details on the transaction service definition items, refer to "Transaction Service Definition Items" in the "List of Definition Items" chapter.

1. Set the disable-distributed-transaction-logging property of the additional property to "true".
2. Disable the settings at restart (when using the asadmin command set subcommand, automatic-recovery).

2.15.6 Transaction Monitoring and Freeze Functionality

The current transaction status can be monitored if the transaction monitoring functionality is enabled. The monitoring level of the transaction service is set to LOW or HIGH in the [Monitoring service] window. The monitoring level of the transaction sub system in configs.config.monitoring-service is set to LOW or HIGH using the asadmin command set subcommand. To disable the transaction monitoring functionality, specify OFF. For details, refer to the Interstage Java EE Admin Console Help, or "asadmin", "set Subcommand" in the "Java EE Operation Commands" chapter.

If the monitoring level is set, the following transaction statuses can be checked:

Monitoring items	Explanation
Transaction ID	Transaction ID is displayed.
Status	One of the following is displayed as the transaction status. Active MarkedRollback Prepared Unknown Preparing Committing

Monitoring items	Explanation
	RollingBack
Elapsed time	The time that has elapsed since the start of the transaction is displayed in milliseconds.
Component name	The class name that started the transaction is displayed using the full package name. Note) If the application that started the transaction does not implement java.io.Serializable using Stateful Session Bean, the component name is output in the format "package name._class name_Serializable".
Resource name	The name of the resources that participate in the transaction is displayed.

When the transaction is monitored, transactions that have been executed and in which an error has occurred can be marked for rollback according to the following procedure. These transactions must be rolled back at the end of the transaction.

1. Freeze
2. Mark Rollback
3. Unfreeze

Although freeze/unfreeze is not mandatory, they are recommended to avoid the transaction being closed during the operation. Operations using the Interstage Java EE Admin Console are explained below. For details on operations using commands, refer to "asadmin" in the "Java EE Operation Commands" chapter.

1. Freeze
 - Click [Freeze] in the monitor [Transaction] window. All active transactions are stopped temporarily when the freeze is executed. Additionally, the transaction manager does not start new transactions.
2. Mark Rollback
 - Select the checkbox next to the transaction ID and then click "Rollback".
3. Unfreeze
 - Click [Unfreeze] to continue the transaction that was temporarily stopped.

2.16 Connection Pool

The "Connection Pool" is a feature that pools (retains) and reuses connections, for example a connection that was made to a database. It does not create the connection each time it is requested. For this reason, by using the Connection Pool, the number of connections to the application by the same user will be reduced, and the load on the application that establishes the connection will also be reduced.

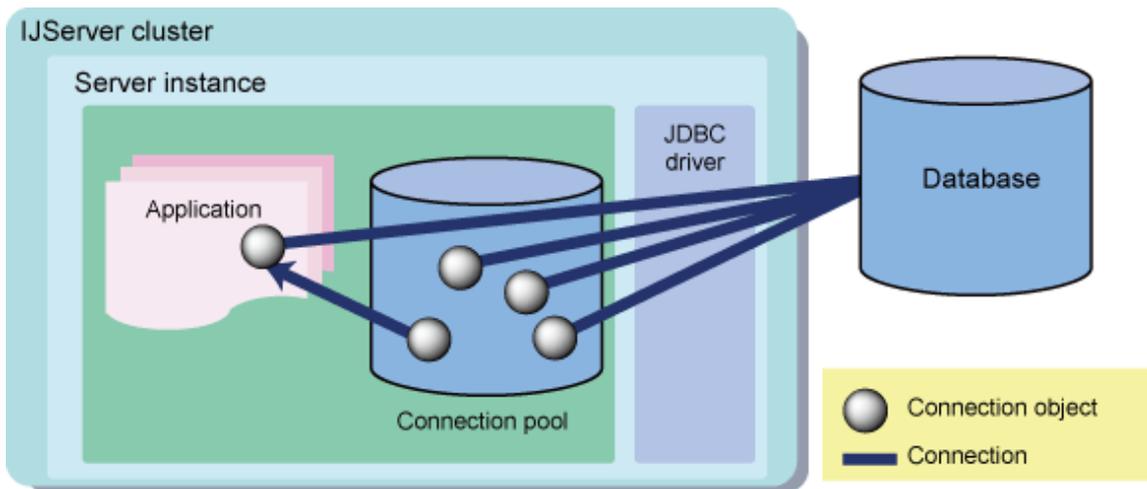
When a request to connect to the following resources, which are registered in the Naming Service, is received, the connection will be pooled.

- Connector resources
- JDBC resources
- JMS Connection Factory

The connection that was actually obtained from the database, for example, is called the "physical connection", and the connection that is reused from the Connection Pool is called the "logical connection".

When the Connection Pool is used, normally the connection is pooled in Interstage. The Connection Pool is generated on each server instance. Interstage manages the Connection Pool, therefore the Connection Pool tuning feature can be used. Additionally, the connection usage status can be monitored.

If the close method is executed for the Connection object that was obtained by the application, the connection will be returned to the Connection Pool and reused without the deletion request (execution of the close method) for the physical connection being made.^(*1) In the example in the figure below, the connection to the database is made using JDBC resources.

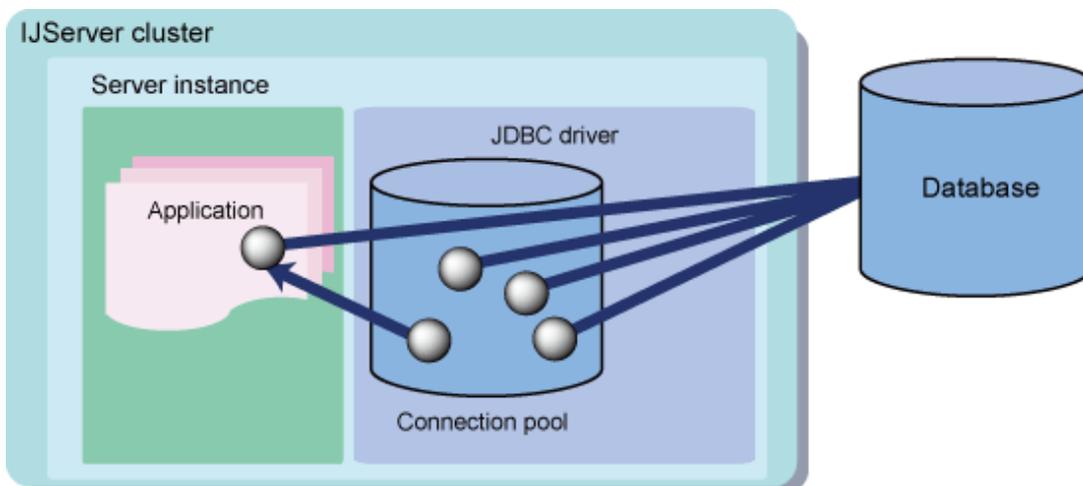


*1) If a connection is obtained during the transaction, it will be returned to the pool once the transaction is complete.

Disabling the JDB Connection Pool

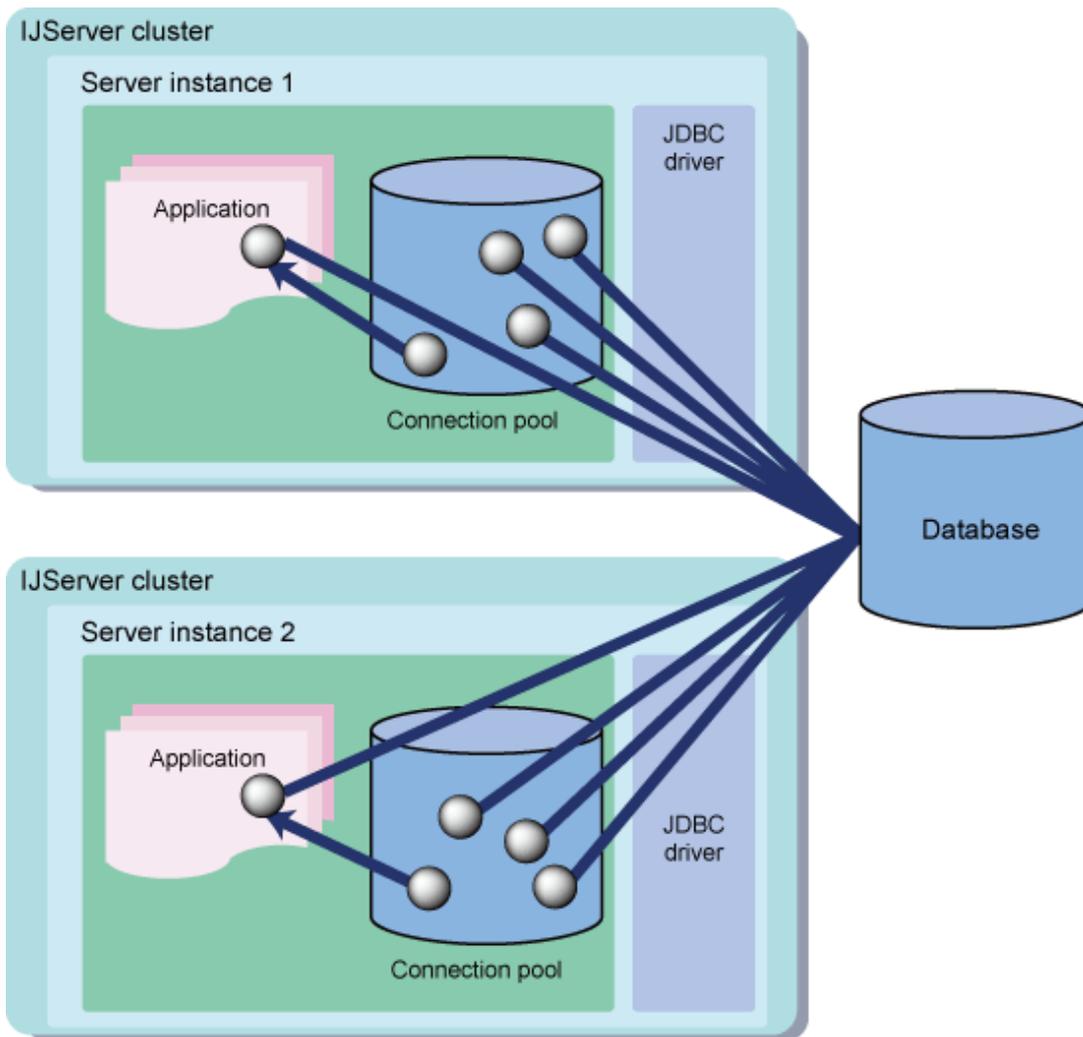
In the JDBC Connection Pool, a feature that pools the connections may be provided in the JDBC driver. For this reason, it is also possible to disable the JDBC Connection Pool in Interstage. In this case, it will not be possible to use some parts of the Connection Pool tuning feature or the monitoring feature. For details, refer to the explanation for each feature.

If the JDBC Connection Pool is disabled and the close method is executed for the Connection object that was obtained by the application, the deletion request (execution of the close method) for the physical connection will be made immediately. How the connection for which the deletion request was made is handled will depend on the JDBC driver specification. In the example in the figure below, the connection to the database is made using JDBC resources.



Connection Pool Generation Units

The Connection Pool is generated on each server instance. In the example in the figure below, the connection to the database is made using JDBC resources.



While the application is not using the Connection object, the connection will be in a pooled state in the Connection Pool. The pooled connection will be destroyed at the following times:

- When an idle timeout occurs
- When connection verification fails
- When the server instance has stopped

2.17 Database Connection/JDBC

The JDBC API is used when the Java EE component accesses the database. This section explains the database connection functionality.

JDBC Resources

JDBC resources (sometimes called data sources) are defined in each database accessed by the application. A unique JNDI name is specified to define the JDBC resource, and the application uses the JNDI API to obtain the JDBC resource. A database processing request can be executed for the JDBC resource.

JDBC Connection Pool

The JDBC Connection Pool manages connections that can be reused. When the new database connection is established, the connection will take some time. For this reason, the performance in Interstage is improved by pooling and then reusing the connection. If the connection request was made from the application, the connection will be obtained from the pool. If the request to free the connection was made from the application, the connection will be returned to the pool.

However, a pooling feature may also be provided in the JDBC driver. If the pooling feature in the JDBC driver is enabled, it will operate redundantly with the Interstage pooling feature. To enable the pooling feature in the JDBC driver, disable the Interstage pooling feature.

If the pooling feature in Interstage is disabled, when the request to free the connection is made from the application, the connection will be deleted without being cached in the Interstage Connection Pool. When the connection request is made from the application, the connection will always be re-obtained using the JDBC driver.

Specify the JDBC Connection Pool when defining the JDBC resources. Multiple JDBC resources can share one JDBC Connection Pool.

Behavior of JDBC Resources and the JDBC Connection Pool

To access the database, the application must first obtain the connection from the JDBC resource. The method used by the application to access the database, and the behavior of the JDBC resources and the JDBC Connection Pool, are explained below.

The behavior of the JDBC Connection Pool will vary, depending on whether the Interstage pooling feature is enabled or disabled.

1. Execute the JNDI API to obtain the JDBC resource (data source) that is defined in order to use the database that will be accessed. When obtaining the JDBC resource, specify the JNDI name that was specified when the JDBC resource was defined.
2. Obtain the database connection (java.sql.Connection object) from the JDBC resource.
 - a. When the pooling feature is enabled in Interstage
Interstage searches the physical connection that was cached internally using the same user name and password from the Connection Pool, and then returns the connection. If the connection did not exist in the pool, it obtains a new physical connection to the database. The maximum pool size can be tuned.
 - b. When the pooling feature is disabled in Interstage
A new physical connection to the database is obtained.
3. The application uses the JDBC API to execute search, update, and insertion processing for the connection that was obtained. The JDBC driver receives the application processing request, then makes a request to the database for processing.
4. After the database processing is complete, the connection is freed. Interstage returns the connection that was freed in the application to the Connection Pool.
 - a. When the pooling feature is enabled in Interstage
The connection is cached in the Connection Pool. Once a connection has been returned to the Connection Pool, it can be used in the next application.
 - b. When the pooling feature is disabled in Interstage
The connection is deleted without being cached in the Connection Pool.

2.18 Time Monitoring Functionality that can be Used at the Time of Database Connection

The following functionality is contained in the time monitoring functionality that can be used at the time of database connection. For details on the method that is used to configure each setting, refer to "Tuning the Database Linkage Environment" in the "Java EE Function Tuning" chapter.

Parameters for the Time Monitoring Functionality

- Maximum wait time
- Idle timeout
- Statement timeout

The connection in which the Java EE component executes the connection request (the getConnection() method for the DataSource object) for the data source is called a "logical connection". The logical connection is only returned to the connection pool and is not deleted, even when the Java EE component releases (executes the close() method for the Connection object) the connection. For this reason, the connection with the database is actually established. This actual connection is called a "physical connection".

2.19 JMS Functions that are Provided

This section explains the following functions that are provided in Interstage JMS:

- [Messaging Models](#)
- [Messaging Functions](#)
- [Message Broker Function](#)

Messaging Models

In Interstage JMS, the models shown below are supported as messaging models.

Publish/Subscribe Messaging Model (1:n Messaging Model)

This is a 1:n messaging model that delivers the same message to multiple recipients.

- Delivery of the same message to multiple recipients.
Producers and consumers are linked via a message broker.
- Durable Subscription.
Messages sent while the application is not active can be received by the application after it becomes active.
- Support for standby type and active type using Message Listener as the consumer mode.
- Controls for message priority and keepalive time.

The effects of using the Publish/Subscribe messaging model are displayed below:

- Delivery to multiple consumers.
By sending a message to one address, the producer can deliver the same message to multiple consumers without needing to be conscious of the number of consumers connected.
- There is little impact on the application when the operation is changed.
There is no need to change the producer for an increase/decrease in consumers.

Point-To-Point Messaging Model (1:1 Messaging Model)

This is a 1:1 messaging model that delivers a message to a specific recipient.

- Point-to-point asynchronous communication.
Producers and consumers are linked via a message broker. When multiple consumers are connected, only one consumer can receive messages. Messages are distributed automatically.
- Support for standby type and active type using Message Listener as the consumer mode.
- Controls for message priority and keepalive time.

The effects of using the Point-To-Point messaging model are shown below:

- Improvement in operability.
In the Publish/Subscribe messaging model, messages delivered before the consumer is generated are destroyed.
In the Point-To-Point messaging model, however, delivered messages are stored in the physical storage destination regardless of the consumer's status, and can be received after the consumer is generated.

Messaging Functions

The functions below are supported as Interstage JMS messaging functions.

Message Guarantee

The message persistence function and local Transaction function prevent message duplication/omission. The global transaction function guarantees the sending/receiving of the message and consistency with processing for update of the DB.

Message Selector Function

The message selector function allows the consumer to specify and receive the messages he wants to receive from the huge variety of messages sent by the producer.

In the producer, information that identifies/classifies the message is set in the message properties field, and then the message is sent. In the consumer, the conditional expression that identifies which message you want to receive is specified when the receipt of the messages starts. Thereafter, the consumer only receives messages with properties that match the conditional expression.

In the Publish/Subscribe messaging model, messages that do not match the conditional expression are destroyed. In the Point-To-Point messaging model, messages that do not match the conditional expression are skipped.

The effects of using the message selector function are shown below:

- Only information of interest to the consumer can be obtained

The consumer can receive just messages of interest to him, instead of having to receive all messages sent by the producer. As a result, operability improves.



Example

For example, if the producer sends news of an international/ society/ politics/ economy/ weather/ sports/entertainment genre, then a consumer can receive specific information on just weather/ sports.

Queue Browser Function

The queue browser function browses messages stored by the application in a queue (physical storage destination). During browsing, messages are not deleted even if they are taken out of the queue. By using the queue browser function, it is easy to develop applications that display queue content. This function can be used in the Point-To-Point messaging model (1:1 messaging model).

Message Broker Function

Interstage JMS has realized asynchronous message communication using a message broker. For details, refer to "[2.19.1 Message Broker](#)".

2.19.1 Message Broker

The message broker manages one or more message storage areas ("physical storage destination"). The physical storage destination can either be created by the system administrator in advance, or automatically when the initial access is made. Another message broker function is a function that manages connections with the JMS client. For details on the message broker functions, refer to "[2.19.2 Message Broker Functions](#)".

The system administrator creates physical storage destinations, defines actions for the management of connections with the JMS client, and performs message broker operations such as start and stop. Additionally, the system administrator creates ConnectionFactory (JMS connection factory) and Destination (JMS send destination resources) that are obtained by the JMS client via JNDI using the asadmin command.

ConnectionFactory

This defines the information that is required to create the connection with the message broker (such as action host and authentication information) and connection information.

Destination

This defines the address information that identifies the physical storage destination.

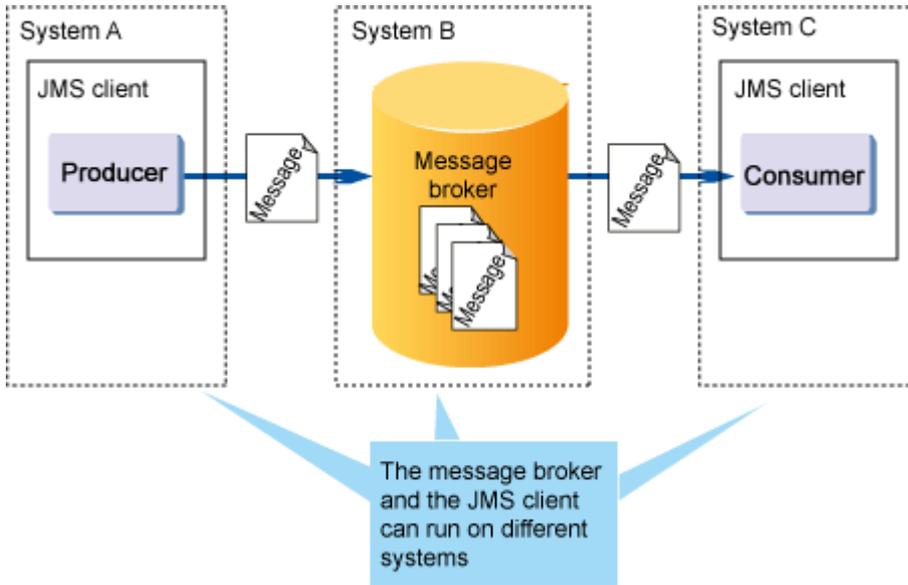
The JMS client application obtains ConnectionFactory and Destination that were defined via JNDI and sends/receives messages after the connection with the message broker is made.

Message Broker Operation Mode

The message broker and JMS client can be run on the same system (machine) or different systems (machines). Multiple message brokers can also be run on one system (machine).

Example

In the following example, the message broker and JMS client are run on different systems.



2.19.2 Message Broker Functions

The message broker functions are as follows:

Physical storage destination management

The message broker receives message send requests from the JMS client, and manages the area that is used to store the messages (physical storage destination).

Connection service

The connection service is a function that manages connections from the JMS client.

Port mapper

The message broker receives connection requests from the JMS client using a delegate port, and creates the message send/receive connections using a port number that is different to the delegate port number. This function is called the "port mapper".

Routing service

This is a function that limits the message flow rate to maintain message broker performance and stability.

Persistence service

If the message broker stops for some reason, the message delivery processing status must be recovered when the message broker recovers. The function that executes this recovery is called the persistence service.

The persistence service is used for message restoration, recreation of Durable Subscription, and transaction rollback.

High Reliability Function

This is a feature that backs up the messages that were discarded from the system because the message had expired, for example.

Predelivery

This is a function in which the message broker delivers messages to the consumer when the consumer connects to the message broker but before processing to receive messages is started.

2.19.3 Physical Storage Destination Management

The physical storage destination is an area that stores messages that were sent by the JMS client.

There are two physical storage destination types: Topic and Queue. When the Publish/Subscribe messaging model is used, the physical storage destination type will be Topic. When the Point-to-Point messaging model is used, the physical storage destination type will be Queue.

The following management is possible in the physical storage destination:

- Automatic generation of the physical storage destination
- Creation of the physical storage destination
- Displaying the list of physical storage destinations
- Displaying physical storage destination information
- Updating physical storage destination properties
- Stopping and restarting the physical storage destination
- Purging physical storage destination accumulated messages
- Destroying a physical storage destination

The physical storage destination behavior can be set when it is generated and during an operation. The items that can be set and the method of setting these items are explained below.

Automatic Generation of the Physical Storage Destination

If an attempt is made to access a physical storage destination in which there is no JMS client, the message broker creates a new physical storage destination automatically.

To generate the physical storage destination automatically, use the `imqbrokerd` command option or the `imqcmd` command `update bkr` subcommand.

For details on the properties that are related to the automatic generation of the physical storage destination, refer to "Physical Storage Destination Automatic Generation Properties" in the "List of Definition Items" chapter.

Note

- This function may send/receive messages to/from an unintended physical storage destination by mistake because of a definition error. For this reason, at the time of this operation, set `false` in the physical storage destination automatic creation property and then perform the operation.
- If there is no access to a physical storage destination that was generated automatically, it is deleted automatically.
- The name of the physical storage destination that is generated automatically will be determined by the JMS destination resource Name property. For details, refer to "asadmin", "Subcommands - Category: Resource", "create-jms-resource Subcommand" in the "Java EE Operation Commands" chapter .
- If the physical storage destination that is referenced by the Message-driven Bean application does not exist in the message broker, the physical storage destination is created when the Message-driven Bean application starts. However, this physical storage destination is distinguished from the physical storage destination that is generated automatically by the message broker, and cannot be set using the physical storage destination `autocreate` property.

When the two properties that are shown in the following example are specified in the `imqbrokerd` command and the message broker is started up, automatic generation of the physical storage destination for Queue and Topic can be prevented.

Example

Example: Preventing the automatic generation of the physical storage destination

```
imqbrokerd -port 37676 -name brokertest -Dimq.autocreate.queue=false -Dimq.autocreate.topic=false
```

Additionally, the settings can also be changed to prevent automatic generation of the physical storage destination after the message broker starts up, using the `imqcmd` command `update bkr` subcommand.

Example

Example: Changing the physical storage destination settings

```
imqcmd update bkr -b localhost:37676 -o imq.autocreate.queue=false -o imq.autocreate.topic=false
```

Creation of the Physical Storage Destination

The physical storage destination can be created using the imqcmd command create dst subcommand.

Example

Example: Creating a physical storage destination whose name is "JMSQueue" and type is "Queue" for the message broker that runs on the local host

```
imqcmd create dst -b localhost:37676 -n JMSQueue -t q
```

To create the physical storage destination by changing the default settings, specify the physical storage destination generation property in the -o option.

For details on physical storage destination generation properties, refer to "Physical Storage Destination Generation or Update Properties" in the "List of Definition Items" chapter.

Example

Example: Changing the maximum number of messages to that have accumulated in the physical storage destination to "100"

```
imqcmd create dst -b localhost:37676 -n JMSQueue -t q -o maxNumMsgs=100
```

Displaying the List of Physical Storage Destinations

The list of physical storage destinations can be displayed using the imqcmd command list dst subcommand.

Example

Example: Displaying the list of physical storage destinations for the message broker

```
imqcmd list dst -b localhost:37676
```

Displaying Physical Storage Destination Information

Properties information that has been set in the physical storage destination can be displayed using the imqcmd command query dst subcommand.

Example

Example: Displaying properties information for the "JMSQueue" physical storage destination

```
imqcmd query dst -b localhost:37676 -t q -n JMSQueue
```

Updating Physical Storage Destination Properties

Properties information that has been set in the physical storage destination can be updated using the `imqcmd` command `update dst` subcommand.

For details on physical storage destination update properties, refer to "Physical Storage Destination Generation or Update Properties" in the "List of Definition Items" chapter.

Example

Example: Changing the "maxNumMsgs" and "maxBytesPerMsg" properties for the "JMSQueue" physical storage destination

```
imqcmd update dst -b localhost:37676 -t q -n JMSQueue -o maxNumMsgs=100 -o maxBytesPerMsg=100
```

Stopping and Restarting the Physical Storage Destination

Delivery of messages from the Producer to the "JMSQueue" physical storage destination, from the "JMSQueue" physical storage destination to the Consumer, or both can be stopped using the `imqcmd` command `pause dst` subcommand.

Example

Example: Stopping delivery of messages from the "JMSQueue" physical storage destination to the Consumer

```
imqcmd pause dst -b localhost:37676 -t q -n JMSQueue -pst CONSUMERS
```

The message delivery that was stopped can be restarted using the `imqcmd` command `resume dst` subcommand.

Example

Example: Restarting delivery of messages from the "JMSQueue" physical storage destination to the Consumer

```
imqcmd resume dst -b localhost:37676 -t q -n JMSQueue
```

Purging Physical Storage Destination Accumulated Messages

All messages that are stored in the physical storage destination can be purged using the `imqcmd` command `purge dst` subcommand.

Example

Example: Purging all messages that are stored in the "JMSQueue" physical storage destination

```
imqcmd purge dst -b localhost:37676 -t q -n JMSQueue
```

Destroying a Physical Storage Destination

A physical storage destination can be destroyed using the `imqcmd` command `destroy dst` subcommand.

Example

Example: Destroying physical storage destination "JMSQueue"

```
imqcmd destroy dst -b localhost:37676 -t q -n JMSQueue
```

2.19.4 Connection Service

The message broker supports application and message broker management using a connection service.

The message broker provides the following two connection services:

admin connection service

This performs message broker management.

Requests from commands that are provided in JMS are received via TCP.

jms connection service

This performs JMS message delivery processing.

Requests from Interstage Java EE DAS Service or IJServer cluster, and send/receive requests from the client application are received via TCP.

Thread Pool Management

Since multiple connections are supported, the connection service runs on multiple threads. The threads required for these connections are managed by the message broker using individual thread pools, which are provided for each admin connection service and jms connection service.

In the thread pool, the minimum and maximum number of managed threads is set in the `min_threads` and `max_threads` properties for the connection service.

Creation of threads

The connection service receives the connection request and obtains the thread from the thread pool. If a thread does not exist, the required number of threads is created and processing is started. After processing is complete, the thread that was obtained or created is returned to the thread pool. It is not deleted.



- Threads will not exist in the thread pool immediately after the message broker has started. For this reason, the number of threads that are managed by the connection service may be less than the minimum number of threads.
- Threads cannot be created if the maximum number of threads is exceeded. If the number of threads that are currently being used has reached the maximum number of threads, new requests will be rejected until the threads that are currently being used are returned to the thread pool.

Destruction of threads

If the number of threads that are managed by the connection service is greater than the minimum number of threads, unused threads will be destroyed after a fixed time has elapsed, since these threads were returned to the thread pool.

The two types of thread pool management model on the message broker are as follows:

dedicated model

Two threads (for receipt and for delivery) are created per connection to the message broker. Accordingly, the number of connections for the number of JMS clients that is created is greater than for the shared model, therefore although the number of JMS clients is limited, performance is improved.

shared model

Message sending and receiving is processed using shared threads. Dedicated threads per connection are not required, therefore although the number of JMS clients increases compared with the dedicated model, in return additional overheads are required in thread management, therefore performance deteriorates.

The thread pool management model is set in the connection service properties `threadpool_model` property when the message broker starts up.



See

For details on thread pool properties, refer to "Message Broker Option Properties", "Connection Service Properties" in the "List of Definition Items" chapter.

2.19.5 Port Mapper

The port mapper is a function that manages port numbers. Even if it does not know which port numbers can be used, the client issues a connection request to the delegate port number that is used to run the port mapper, therefore a connection with the message broker can be obtained.

The port mapper assigns a port number by default dynamically.

It can specify and assign a port number when the message broker starts up.



Note

When using each connection service use the port mapper delegate port number, even if the port number was assigned statically.



See

For details on port mapper properties, refer to "Message Broker Option Properties", "Connection Service Properties" in the "List of Definition Items" chapter.

2.19.6 Routing Service

In the routing service, the following types of control are performed to improve message broker performance and stability.

System overall message limit

An overall limit for the message broker can be set by specifying the following data for system messages. If the limit for these values is reached, the message broker rejects new messages until any pending messages fall below the limit.

- Maximum number of messages retained by the message broker (imq.system.max_count)
- Maximum total number of bytes available for the message (imq.system.max_size)

Additionally, there are also limits for the following:

- Maximum size of each message (imq.message.max_size)
- Expired message detection interval (imq.message.expiration.interval)

Message limit for a specific physical storage destination

There are the following limits for messages to a specific physical storage destination:

- Number and size of messages retained in the physical storage destination
- The number of Producers and Consumers that can be created
- The number of messages that can be delivered to the Consumer in a single process

The message broker can be set as follows so that action can be taken against memory limitations.

- The delivery speed for messages from the Producer is reduced.
- The newest received message is rejected.
- The oldest existing message is discarded.
- The lowest priority existing message is discarded.

A message discarded using these methods can be moved to a dead message queue as an option instead of being destroyed irretrievably.

2.19.7 Persistence Service

The persistence service prevents the loss of messages because of trouble such as system crash, application abnormality, or network abnormality by storing messages and Durable Subscription information in a data store (file).

The persistence service settings methodology is explained here.

Data Store Settings

By default, write operations for the data store are performed asynchronously to improve performance. If higher reliability is required, set the connection service properties `imq.persist.file.sync.enabled` property to perform write to the data store synchronously when the message broker starts up.



See

.....

For details on the data store properties, refer to "Persistence Service Properties" in the "List of Definition Items" chapter.

Additionally, it is also possible to start the message broker after initializing the data store (clearing the messages that are stored in the persistence area/Durable Subscription information).

For details, refer to "imqbrokerd" in the "Java EE Operation Commands" chapter.

.....

2.19.8 High Reliability Function

Interstage JMS provides the following high reliability function:

- Message backup when there is an abnormality

Message Backup when there is an Abnormality

Messages are discarded from the system for reasons other than normal processing or an explicit operation by the administrator. These reasons are as follows:

- The date has expired.
- The upper limit for messages that can be retained was exceeded, therefore the message was discarded from the physical storage destination.
- Delivery processing failed.

A message that was discarded from the system for the above reasons is called a "dead message".

When the message broker starts up, it automatically creates a dead message queue that dead messages are allocated to. The message broker allocates dead messages to the dead message queue. A physical storage destination with the fixed name "mq.sys.dmq" is set for the dead message queue. This cannot be deleted. Additionally, messages cannot be sent to the dead message queue explicitly.

Using the Message Backup Function Following an Abnormality

The message backup function following an abnormality is enabled by default. Whether to use the message backup function is set in the physical storage destination `useDMQ` property.

For details on the physical storage destination `useDMQ` property, refer to "Physical Storage Destination Generation or Update Properties" in the "List of Definition Items" chapter.



Example

.....

Example: Executing the update command so that the message backup function following an abnormality is not used

```
imqcmd update dst -b localhost:37676 -n JMSQueue -t q -o useDMQ=false
```

.....

Dead Message Queue Management

Dead message queues can be managed in the same way as for other physical storage destinations using the `imqcmd` command, however there are the following differences:

- Dead message queue cannot be created or deleted.
- The default value of the dead message queue properties is different to the normal physical storage destination.

Property	Difference with the normal physical storage destination	Dead message queue default value	Other physical storage destination default value
limitBehavior	FLOW_CONTROL is not supported.	REMOVE_OLDEST	REJECT_NEWEST
maxNumMsgs	-	1000	-1 (unlimited)
maxNumProducers	This cannot be changed.	0	100
maxTotalMsgBytes	-	10M	-1 (unlimited)
useDMQ	true is not supported.	false	True

Message Content

The message broker can allocate the entire message to the dead message queue. Alternatively, it can destroy the message content and just leave the header and property data. By default, the dead message queue stores the entire message.

If you do not intend to restore dead messages, set true in the `imq.destination.DMQ.truncateBody` message broker property. Accordingly, the message body is destroyed, just the header and property data are left, and the dead message queue size can be reduced.

For details on `imq.destination.DMQ.truncateBody`, refer to "Routing Service Properties" in the "List of Definition Items" chapter.



Example

Example: Executing the settings command so that the message body is destroyed and the message saved in the dead message queue

```
imqcmd update bkr -b localhost:37676 -o imq.destination.DMQ.truncateBody=true
```

Dead Message Logging

Dead message logging is a function in which the message broker records log information when the following events occur:

- The message broker moves messages to the dead message queue.
- The message broker removes messages from the dead message queue and from a physical storage destination that does not use a dead message queue.
- The physical storage destination reaches its limit.

Dead message logging is disabled by default. Dead message logging is set in the `imq.destination.logDeadMsgs` property. Dead message logging is applied in all physical storage destinations that use a dead message queue. Logging cannot be enabled or disabled per physical storage destination.

For details on the `imq.destination.logDeadMsgs` property, refer to "Log Function Properties" in the "List of Definition Items" chapter.



Example

Example: Executing the command that enables dead message logging

```
imqcmd update bkr -b localhost:37676 -o imq.destination.logDeadMsgs=true
```

Restoring Messages from the Dead Message Queue

Messages that were moved to the dead message queue can be referenced using the Interstage JMS queue browser function.

To use a dead message queue in a JMS client application, obtain the dead message queue using the `createQueue` method of the `Session` class.

Example

Example: The createQueue method for obtaining the dead message queue

```
Queue deadMessageQueue = session.createQueue("mq.sys.dmq") ;
```

Purging Messages from the Dead Message Queue

If messages that were moved to the dead message queue are no longer needed, they can be purged using the imqcmd command. For details, refer to the "purge dst" and "purge dur" subcommands in "imqcmd" in the "Java EE Operation Commands" chapter.

Example

Example: Executing the command that purges messages from the dead message queue

```
imqcmd purge dst -b localhost:37676 -t q -n mq.sys.dmq
```

2.19.9 Predelivery

The message broker delivers messages to the consumer using the predelivery feature.

By using the predelivery feature, communication overheads in consumer reception processing will be reduced because there is no need for communication with the message broker.

The predelivery processing is explained below.

- [Single Consumer Predelivery Processing](#)
- [Multiple Consumer Predelivery Processing \(with Accumulated Messages\)](#)
- [Multiple Consumer Predelivery Processing \(without Accumulated Messages\)](#)

Note

The validity term set for the message will be invalid if the message is predelivered. For this reason, the messages which expired the validity term that was set when the message was sent may be delivered to the consumer.

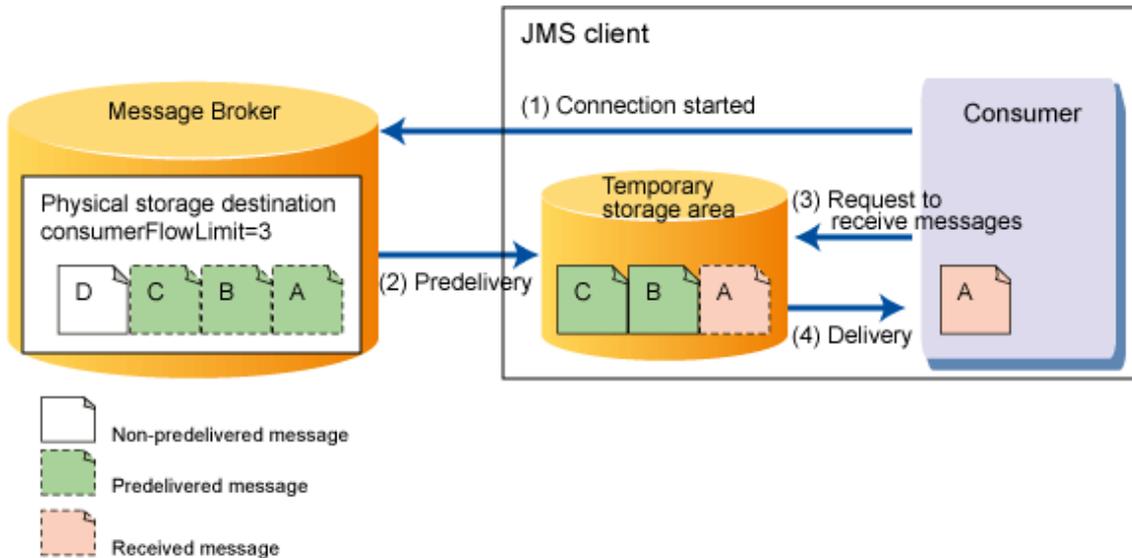
When using a message for which a validity term has been set, it is recommended that a low value be set for consumerFlowLimit.

Single Consumer Predelivery Processing

An overview of the predelivery processing for one consumer from the physical storage destination is shown in the figure below.

Predelivery processing is also performed in the same way for the Message-driven Bean.

The consumer in the figure below can also be read as "Message-driven Bean".



[Processing flow]

(1) The connection is started

When the consumer starts the connection, it makes a request for predelivery to the message broker.

(2) Predelivery

The messages that can be delivered to the consumer are predelivered in a maximum for the consumerFlowLimit set in the physical storage destination.

In the figure above, the message broker predelivers three messages (A, B, and C).

(3) The request to receive the message is made

When the consumer makes the request to receive the message, it is making a request for delivery of the message to the temporary storage area where the predelivered message has been stored.

(4) Delivery

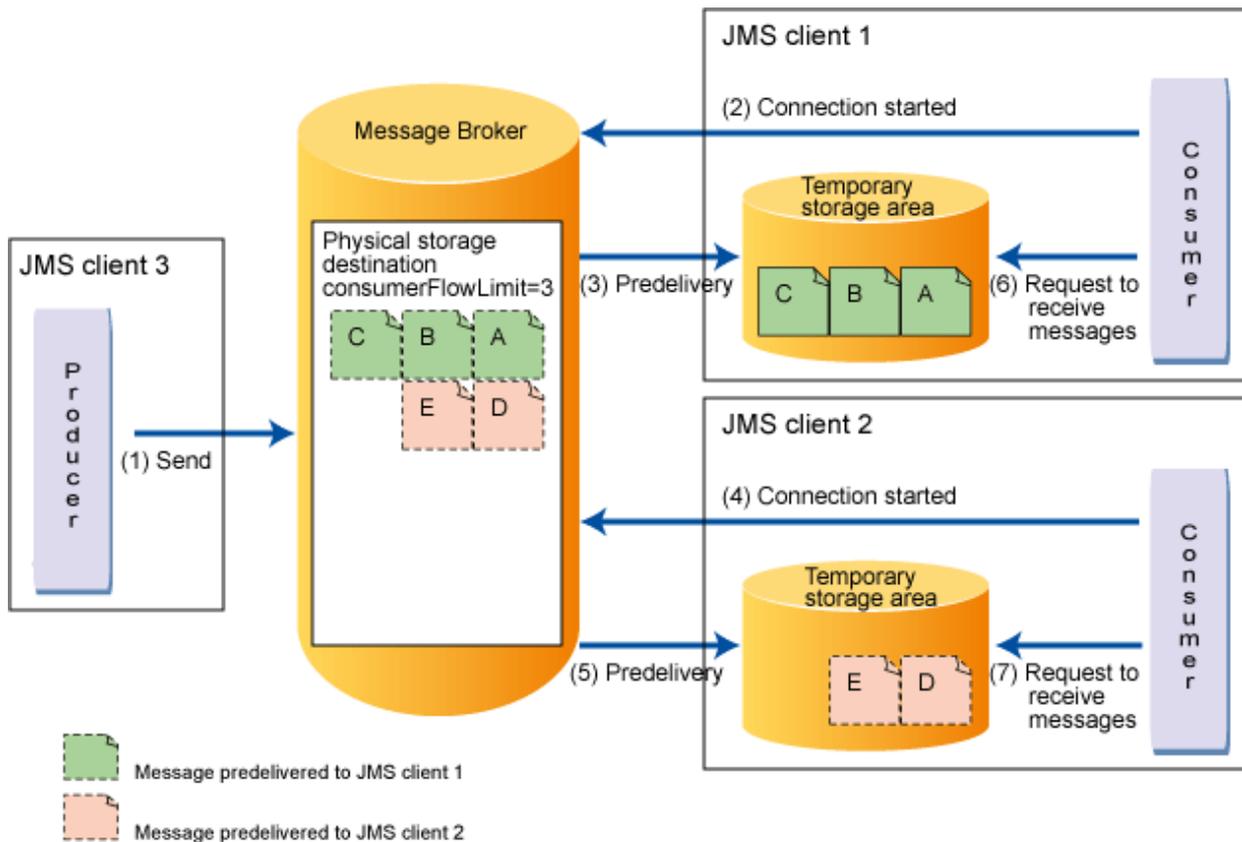
The consumer receives the message (A).

Multiple Consumer Predelivery Processing (with Accumulated Messages)

An overview of the predelivery processing for multiple consumers from the physical storage destination in which messages are stored is shown in the figure below.

Predelivery processing is also performed in the same way for the Message-driven Bean.

The consumer in the figure below can also be read as "Message-driven Bean".



[Processing flow]

(1) JMS client 3 sends messages

The producer sends five messages (A, B, C, D, and E) to the physical storage destination.

(2) JMS client 1 starts the connection

When the consumer starts the connection, it makes a request for predelivery to the message broker.

(3) The messages are predelivered to JMS client 1

The messages that can be delivered to the consumer are predelivered in a maximum for the consumerFlowLimit set in the physical storage destination.

In the figure above, the message broker delivers three messages (A, B, and C).

(4) JMS client 2 starts the connection

When the consumer starts the connection, it makes a request for predelivery to the message broker.

(5) The messages are predelivered to JMS client 2

The messages that can be delivered to the consumer are predelivered in a maximum for the consumerFlowLimit set in the physical storage destination.

In the figure above, the message broker delivers two messages (D and E).

(6) JMS client 1 makes a request to receive the messages

The consumer receives the messages in A, B, and C order.

The messages (D and E) have already been predelivered to JMS client 2, therefore they cannot be received.

(7) JMS client 2 makes a request to receive the messages

The consumer receives the messages in D, and E order.

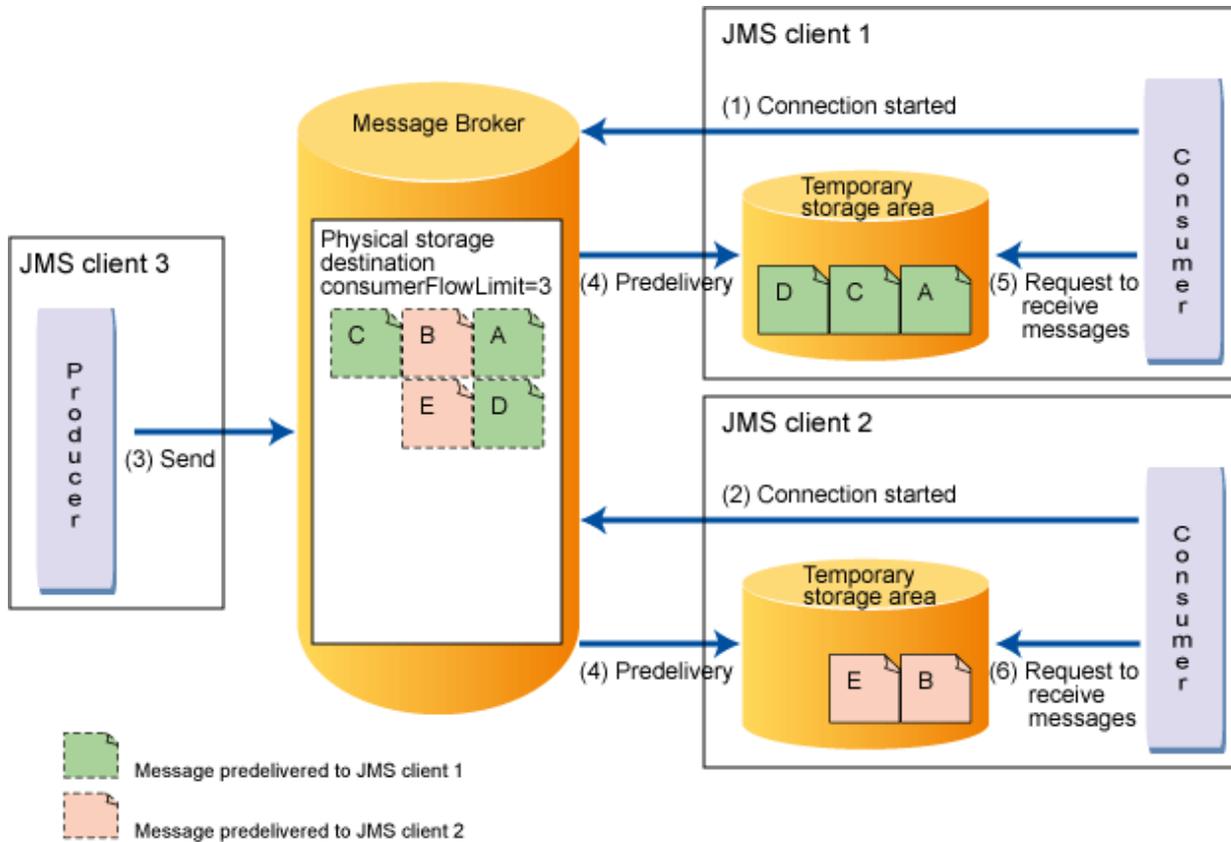
Messages (A, B, and C) have already been predelivered to JMS client 1, therefore they cannot be received.

Multiple Consumer Predelivery Processing (without Accumulated Messages)

An overview of the predelivery for multiple consumers from the physical storage destination in which messages are not stored is shown in the figure below.

Predelivery processing is also performed in the same way for the Message-driven Bean.

The consumer in the figure below can also be read as "Message-driven Bean".



[Processing flow]

(1) JMS client 1 starts the connection

When the consumer starts the connection, it makes a request for predelivery to the message broker.

However, since no messages have accumulated in the physical storage destination, predelivery will not be performed.

(2) JMS client 2 starts the connection

When the consumer starts the connection, it makes a request for predelivery to the message broker.

However, since no messages have accumulated in the physical storage destination, predelivery will not be performed.

(3) JMS client 3 sends messages

The producer sends five messages (A, B, C, D, and E) to the physical storage destination.

(4) The messages are predelivered to JMS clients 1 and 2

The message broker dispatches the messages that have accumulated in the physical storage destination randomly in a maximum for the consumerFlowLimit set in the physical storage destination.

If the scenario in the above figure applies, the following steps are executed:

1. Three messages (A, C, and D) are predelivered to JMS client 1.
2. Two messages (B and E) are predelivered to JMS client 2.

(5) JMS client 1 makes a request to receive the messages

The consumer receives the messages in A, C, and D order.

Messages (B and E) have already been predelivered to JMS client 2, therefore they cannot be received.

(6) JMS client 2 makes a request to receive the messages

The consumer receives the messages in B, and E order.

Messages (A, C, and D) have already been predelivered to JMS client 1, therefore they cannot be received.

Estimating JMS Client Memory

For the message broker to be able to perform predelivery processing, the memory that will be used must be estimated using the formula shown below before the JMS client is started.

(Number of consumers x consumerFlowLimit value set in the physical storage destination that the consumer will connect to x Size of the message that the consumer will receive) x 2 or greater

2.20 Functionality Provided in the Connector

This section explains the functionality provided in the connector service that is not compliant with the Java EE Connector Architecture specification.

Depending on the resource adapter type, there is outbound/resource-specific functionality, or functionality that is common for both.

- Outbound/resource adapter functionality

- [Definition of the Connector Connection Pool and Connector Resources](#)
- [Outbound/resource Adapter Transaction Control](#)
- Security management

Refer to "Authentication Information at the time of Resource Access" in the "Java EE Function Security" chapter.

- Inbound/resource adapter functionality

- [Connections with Message-driven Bean](#)

- Common functionality for both

- [Definition of Managed Object Resources](#)
- [JavaBean Configurations](#)
- [Execution of Work when the Thread Pool is Used](#)
- Shutdown Timeout

Refer to "2.21 Time Monitoring Functionality that can be Used in the Connector".

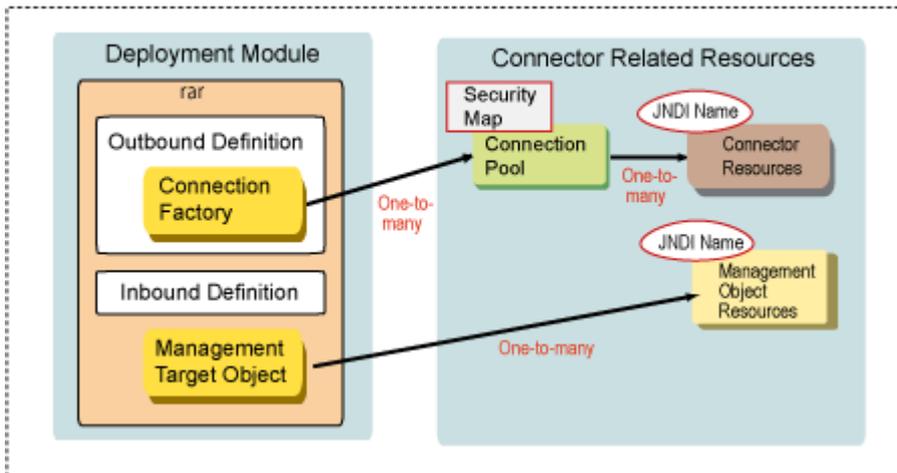
In addition to the above types of functionality, the connector service of this product also supports the time monitoring functionality. For details, refer to "2.21 Time Monitoring Functionality that can be Used in the Connector".

2.20.1 Definition of the Connector Connection Pool and Connector Resources

This section explains the connector connection pool and the connector resources.

The relationships between the connector connection pool, the connector resource, and the managed object resources are shown below. The red line shows multiple definitions of the connector connection pool and connector resources. For details on managed object resources, refer to "2.20.4 Definition of Managed Object Resources".

IJServer cluster



Connector Connection Pool

The connection pool manages connections established between EIS types and improves the performance by returning connections in the pool when a request is made by the client. It also detects connection errors in the pool, performs reconnection processing automatically, and is equipped with security functionality for the verification of client authentication information.

More than one **ConnectionFactory** can be described in a resource adapter in applications that are compliant with the connector specification. Additionally, settings for more than one connection pool can be defined in each **ConnectionFactory** in the connector service of this product. The resource that is used to define the connection pool is defined is called the **connector connection pool (Connector Connection Pool)**. For details on the connector connection pool tuning information, refer to "Connector Tuning" in the "Java EE Function Tuning" chapter.

When the outbound resource adapter is used, the connector connection pool must be registered after the connector module is deployed.

Connector Resources

The JNDI name that is used to look up the **ConnectionFactory** using JNDI is set in a single connector connection pool. More than one JNDI name can be defined in the connector connection pool. The resource that is used to define the JNDI name in the connector connection pool is called the **connector resource (Connector Resource)**.

2.20.2 Outbound/resource Adapter Transaction Control

The connector service in this product supports the transaction functionality.

Transaction Support

The connector connection pool definition items contain an option that is used to overwrite the transaction support level described in `ra.xml`. In `ra.xml`, only a single transaction support level can be described for all resource adapter. **ConnectionFactory** units, however by using this functionality it is possible to adjust the level for a single **ConnectionFactory**.

Although this resource adapter supports XA transactions, it is useful when options such as the use of local transactions and non-connected transactions are selected because the distributed transaction requires high-level processing with a 2-phase commit protocol.

The transaction support level is only valid when it is less than or equal to the level described in `ra.xml`. If a level greater than the one described in `ra.xml` is specified, then an error will be output to the server log when the IJServer cluster or Interstage Java EE DAS service starts up. The order level, starting with the highest first, is XA transaction support (**XATransaction**), local transaction support (**LocalTransaction**), and transaction non-support (**NoTransaction**).

2.20.3 Connections with Message-driven Bean

The inbound resource adapter runs asynchronously to the application, and the resource adapter makes a request to the application for processing if necessary. The resource adapter receives the processing request from EIS, calls the Message-driven Bean at the required time, and then distributes the processing request to the application server. The message that is distributed is managed in the EJB container according to the various Message-driven Bean definitions.

The application that receives the inbound resource adapter uses the Message-driven Bean. The resource adapter name specifies which resource adapter the message is received from. If the resource adapter name is not specified, or an empty string or "jmsra" has been specified, JMS is selected as the target for receiving Message-driven Bean messages. For details on the resource adapter name, refer to "Deploying the Connector Module and Creation of Resource Definitions" in the "Java EE Application Operation" chapter. For details on the Message-driven Bean, refer to "2.8.2 Message-driven Bean Runtime Environment".

2.20.4 Definition of Managed Object Resources

In the resource adapter that is compliant with the Java EE Connector Architecture specification, the Administered Object ("managed object") that manages resource adapter-specific information can be defined and used in the application. The application obtains the management target object via JNDI lookup processing and executes processing. More than one management target object can be included in the connector module, and a unique JNDI name is assigned in the system for each management target object interface. The management target object resource for which the JNDI name is assigned is called a **managed object resource (Admin Object Resource)**.

2.20.5 JavaBean Configurations

In the resource adapter that is compliant with the Java EE Connector Architecture specification, the JavaBean instance is created and used for processing according to the resource adapter type. When the JavaBean is created, the config property value specified in the deployment descriptor (or annotation), Interstage Java EE Admin Console, or asadmin command is set. JavaBean types include the resource adapter, ManagedConnectionFactory, ActivationSpec, and management target object. The configuration is executed according to the following three steps.

1. Generate the JavaBean instance (*1)
2. Add the type A and B config properties
 - Type A: deployment descriptor (ra.xml, ejb-jar.xml (*2))/annotation (*2) config property
 - Type B: config property specified using the Interstage Java EE Admin Console/asadmin command/ sun-ejb-jar.xml (*2)

*1) Add the type B properties to the type A properties. When there is a common property name, however, overwrite type A with the type B property value.

*2) This only applies for ActivationSpec JavaBean. For details on sun-ejb-jar.xml, refer to "Interstage EJB Application deployment descriptor (sun-ejb-jar.xml)" in the "Java EE Application Development" chapter.

3. Call the JavaBean setter that uses the config property after execution

The properties used by each JavaBean are shown in the table below.

JavaBean type	Type A	Type B
Resource adapter	<connector><resourceadapter><config-property> of ra.xml	- None
ManagedConnectionFactory	<connector><resourceadapter><outbound-resourceadapter><connection-definition><config-property> of ra.xml	<ul style="list-style-type: none"> - Interstage Java EE Admin Console: [Connector connection pool] > [Additional property] - asadmin command: property option of the create-connector-connection-pool subcommand - Additional property of connector connection pool definition item
ActivationSpec	<ul style="list-style-type: none"> - <ejb-jar><enterprise-beans><message-driven><activation-config><activation-config-property> of ejb-jar.xml - javax.ejb.ActivationConfigProperty (The activationConfig attribute value of the javax.ejb.MessageDriven annotation) 	<sun-ejb-jar><enterprise-beans><ejb><mdb-resource-adapter><activation-config><activation-config-property> of sun-ejb-jar.xml

JavaBean type	Type A	Type B
Management target object	<connector><resourceadapter><adminobject><config-property> of ra.xml	<ul style="list-style-type: none"> - Interstage Java EE Admin Console: [Managed object resources] > [Additional property] - asadmin command: property option of the create-admin-object subcommand - Additional property of Managed Object Resources definition item

2.20.6 Execution of Work when the Thread Pool is Used

This product supports Work Admin functionality for the execution of `javax.resource.spi.work.Work` (such as application calling, network, endpoint monitoring, and data entry processing) synchronously or asynchronously. By using the Work Admin functionality, the application that uses the thread control mechanism provided in this product can be set up. The resource adapter performs a Work execution request for the implementation of the `javax.resource.spi.work.WorkManager` class provided by the IJServer cluster using the `scheduleWork()` method.

By specifying the thread pool ID when the connector module is deployed, the predefined specific thread pool can be set for each resource adapter. If the specific thread pool is not specified, the default thread pool of this product is used. For details on the thread pool settings, refer to "Thread Pooling" in the "Java EE Function Tuning" chapter.

Thread for Work Control

One thread for Work control is taken out of the thread pool and assigned for one Work execution request. When the execution of Work is complete, the thread for Work control is returned to the pool. The number of threads for Work control continues to increase until it reaches the maximum value specified for the Work execution request in the thread pool. If the number of threads for Work control reaches the maximum value while all threads for Work have been executed, new Work execution requests that are sent are managed in the FIFO queue. When a thread for which the Work assignment is released returns to the pool, the Work that is managed in the queue is assigned to the next available thread. If the thread for control is not allocated to the Work by the time the start timeout value specified when the Work execution request was made has elapsed, `javax.resource.spi.work.WorkRejectedException` is returned to the resource adapter.

2.21 Time Monitoring Functionality that can be Used in the Connector

The following functionality is contained in the time monitoring functionality that can be used in the connector. For details on the method that is used to configure each setting, refer to "Connector Tuning" in the "Java EE Function Tuning" chapter.

- Maximum wait time
- Idle timeout
- Shutdown timeout

2.22 Group Management Service

The Group Management Service (GMS) is a function that is provided to monitor the start status of server instances that belong to the IJServer cluster mutually. For example, if a server instance has stopped abnormally, the fact that it has stopped is notified to each server instance, therefore it can be excluded from server instances that are targets of IIOP communication request distribution. The GMS can be used in the following functions:

RMI-IIOP load balance and failover

For details on RMI-IIOP load balance and failover, refer to "Control for Dispatching Requests via IIOP Communications" in the "Java EE Application Operation" chapter.

A signal indicating that each server instance is running normally is sent regularly. This signal is called a "heartbeat". There is a definition that enables the heartbeat in each IJServer cluster (this is disabled by default), and the address and port number that are used to send the

heartbeat signal are specified in the following definition items. If the heartbeat is disabled, the fact that all server instances that belong to the IJServer cluster have start status is recognized.

- heartbeat address
- heartbeat port

Specify the multicast address in the heartbeat address. Each server instance sends the heartbeat signal to a multicast address, and then recognizes the fact that each server instance is running normally by receiving the heartbeat signal that is delivered from that multicast address.

Additionally, the time interval for sending the heartbeat signal and the number of heartbeat signal retries that can be sent until the abnormality is recognized can be tuned using the following definitions. If a heartbeat signal for the time that was specified or the number of retries is not sent, a ping request is sent to the corresponding server instance. If there is still no response, it is assumed that the server instance has stopped.

- Maximum protocol retry
- Protocol timeout
- Timeout for completed verification
- ping timeout

The heartbeat address and heartbeat port settings can be changed using the Interstage Java EE Admin Console and the `asadmin` command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- "Definition items of the clusters" in the "Java EE Operation Commands" chapter

Additionally, GMS tuning item settings such as protocol timeout can be changed using the Interstage Java EE Admin Console and the `asadmin` command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- "Definition items of the configs.config.group-management-service" in the "Java EE Operation Commands" chapter

2.23 Class Loader

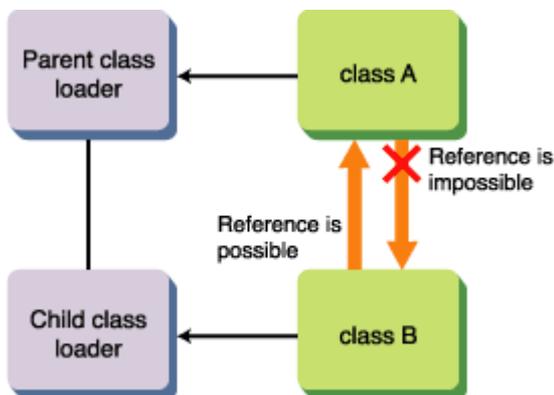
The Java class loader searches the class file and provides the functionality to load the class to the memory.

When creating the Java EE application, identify which class loader the class is loaded on and then configure the Java EE application.

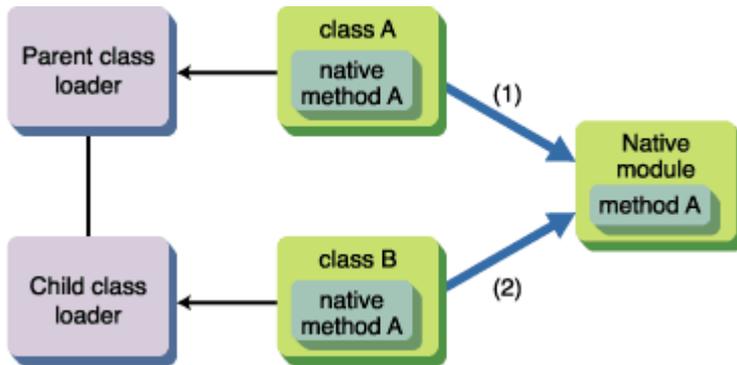
Structure of the Class Loader

The Java class loader has a class structure consisting of a parent class loader and a child class loader. The relationship between the parent class loader and the child class loader is similar to the relationship between the super class and the sub class of an object.

The class loaded by the child class loader can refer to the class loaded by the parent class loader whereas the class loaded by the parent class loader cannot refer to the class loaded by the child loader.



Further caution is required if JNI (Java Native Interface) is used. In JNI, the class loader loads the Native module. In the Java class loader, however, the Native module can only be loaded from the same class loader.



The same Native module is used in (1) and (2), however it can only be used by the one that reads the Native module first.

If class B is running first, "java.lang.UnsatisfiedLinkError" is thrown to class A. The same also applies to this product.

Class Loading

The class loader loads the class using the transfer model. The class loader has a related parent class loader and transfers the relevant class load to the parent class loader before attempting to load the class by itself when called to load the class.

2.23.1 Class Loader Configuration

This section explains the class structure of the IJServer cluster class loader.

The class loader used by IJServer cluster has a class structure consisting of a parent class loader and a child class loader. Because the class loader has a class structure, independence between the system and the application as well as between applications is improved.

Each class loader loads the resources shown in the table below. In the default settings, the class loader loads the class in the order shown in the table (top first, bottom last). The lookup-order for resources loaded by an identical class loader is undefined.

Class loader	Resources to be loaded	Settings method
System class loader	None	Not possible
Shared Chain class loader	Application server classes	Not possible
	Common IJServer cluster classes	This is the class path suffix. Note: For details, refer to "2.23.4 Setting Classes Used by IJServer Cluster".
Common class loader	All common classes in the IJServer cluster	This is the common directory. For details, refer to "2.23.4 Setting Classes Used by IJServer Cluster".
Connector class loader	Connector applications	RAR file
Applib class loader	Application library classes (JAR file)	Application library (when the EAR file and EJB-JAR file are deployed) For details, refer to "Setting Classes Used by IJServer Cluster".
Application class loader	Common classes used in the application	This is the application library. For details, refer to "2.23.4 Setting Classes Used by IJServer Cluster".
	Common classes (JAR files) used in the enterprise application	Directory specified in the application.xml library-directory tag This is the EAR file lib directory, if the library-directory tag is omitted
	Common classes used in the application	This is set in the application root directory.

Class loader	Resources to be loaded	Settings method
	Classes used by the module (each module in the EAR file or EJB application with single deployment)	This is the manifest file class path in the module and the class in the module.
Web class loader	Class commonly used in the web application.	This is the application library (used for single deployment of the WAR file). For details, refer to " 2.23.4 Setting Classes Used by IJServer Cluster ".
	Class (class file) in the web application	This is the WEB-INF/classes directory in the WAR file. In the default setting of this product, these resources are loaded by the Application class loader during the EAR file deployment. For details, refer to " 2.23.3 Changing the Transfer Model of Web Class Loader ".
	Class (JAR file) in the web application	This is the WEB-INF/lib directory in the WAR file. In the default setting of this product, these resources are loaded by the Application class loader during the EAR file deployment. For details, refer to " 2.23.3 Changing the Transfer Model of Web Class Loader ".

In addition to the Connector class loader, the child class loader of the Connector class loader has a lifecycle module class loader that loads the lifecycle module.

Class loader	Resources to be loaded	Settings method
System class loader	Same as the above table.	
Shared Chain class loader		
Common class loader		
Connector class loader		
Lifecycle module class loader	Lifecycle module	The lifecycle module settings. For details, refer to " 2.24 Lifecycle Module ".

2.23.2 Classification of Class Loaders

The IJServer cluster class loader is created in the units shown in the table below:

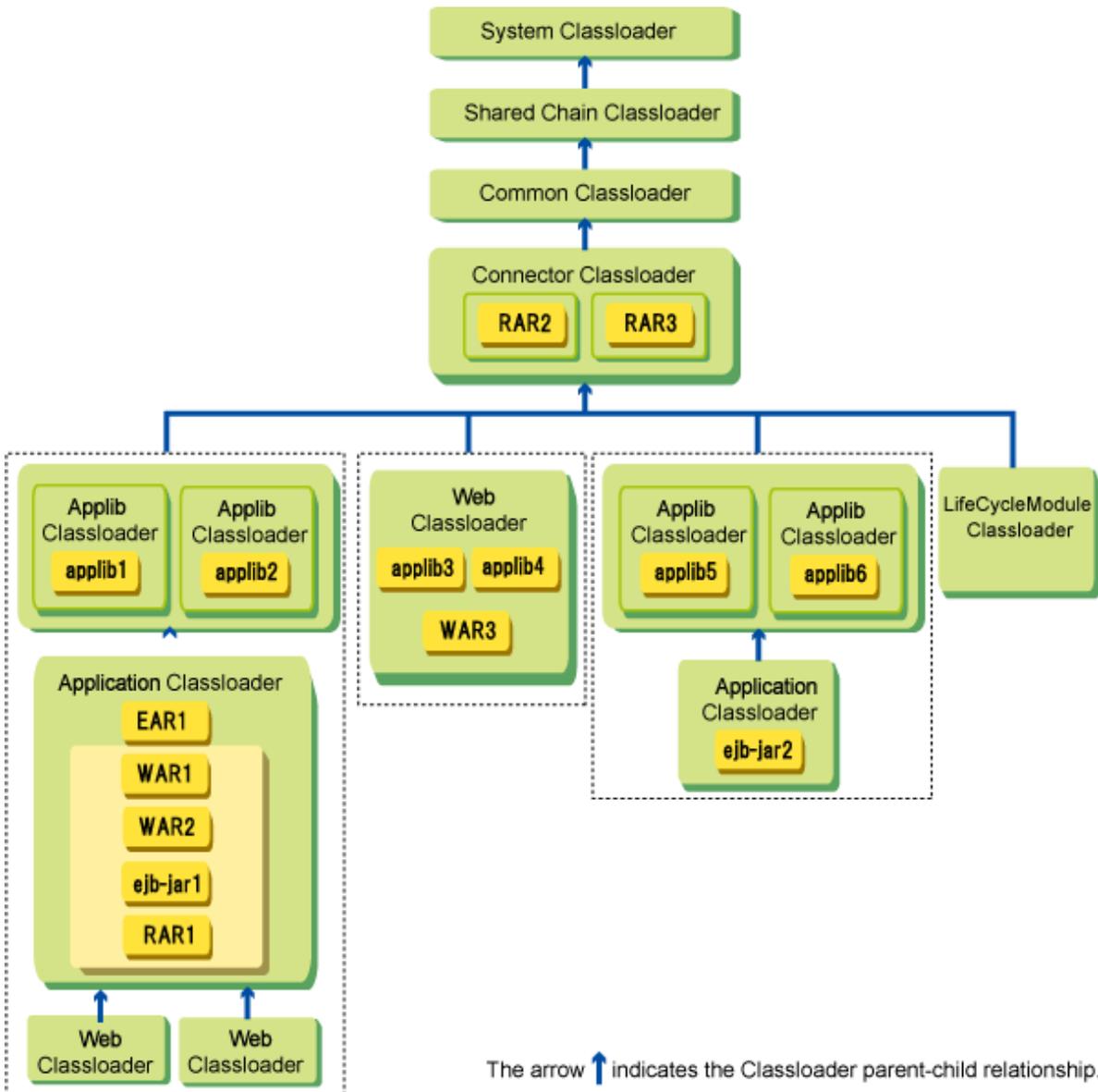
Class loader	Unit
System class loader	One class loader is created in the server instance.
Shared Chain class loader	One class loader is created in the server instance.
Common class loader	One class loader is created in the server instance.
Connector class loader	One class loader is created in the server instance.
Lifecycle module class loader	If a lifecycle module has been created, one class loader is created per lifecycle module.
Applib class loader	This is created per deployment unit and application library if the application library was specified when the EAR or EJB-JAR file was deployed.
Application class loader	If an EAR file or EJB-JAR file has been deployed, one class loader is created per deployed EAR file/EJB-JAR file.

Class loader	Unit
Web class loader	If a WAR file or an EAR file that contains a web module has been deployed, one class loader is created per deployed WAR file or EAR file web module.

The figure below illustrates the class loader structure for the default transfer model.

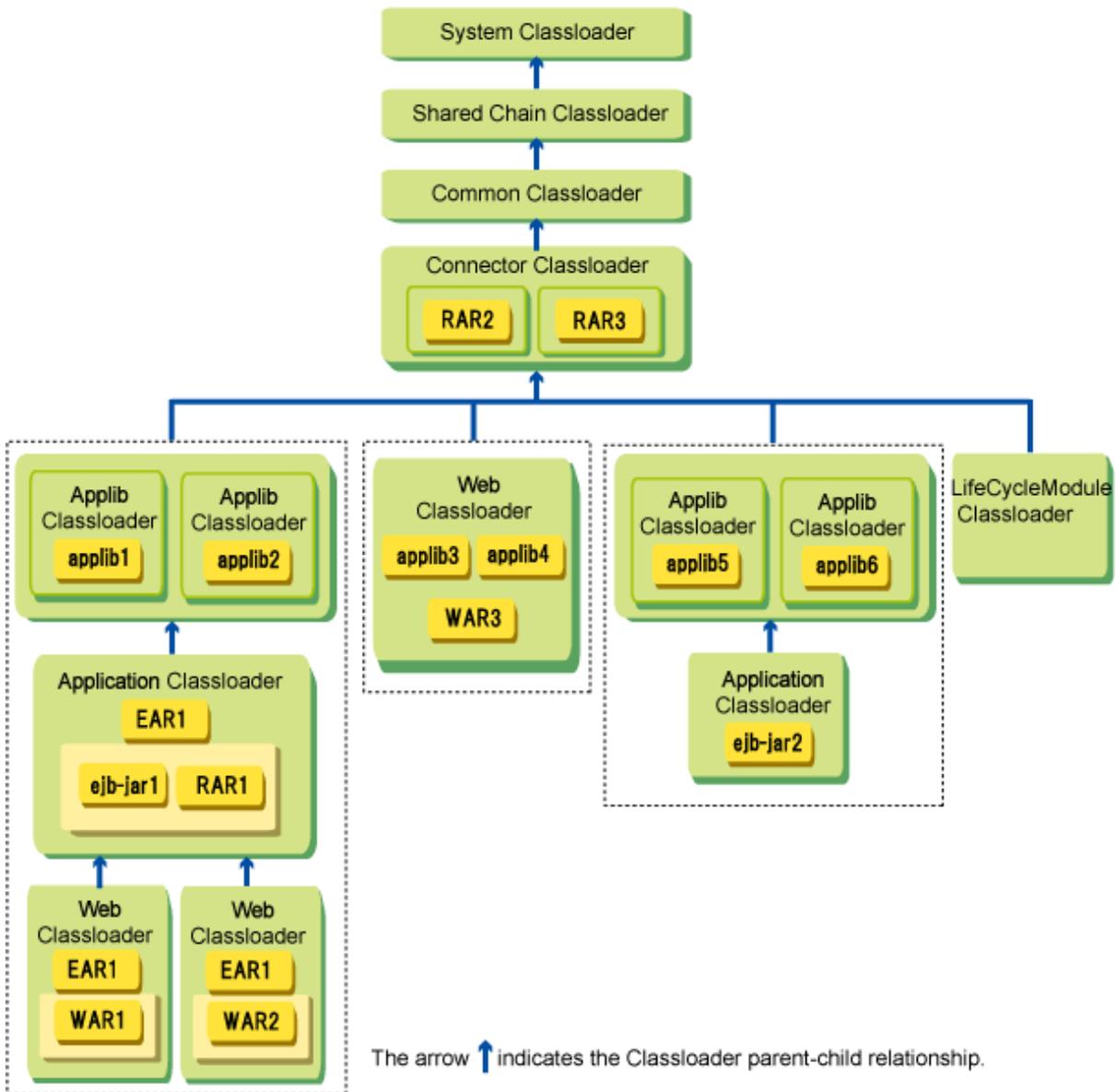
The same name file, package name and class name unit can be used for each deployment because the class loader is created and the class loaded separately for each deployment unit indicated by the dotted line.

In the default delegate model, the web module in the EAR file is loaded by the Application class loader. As a result, a cross reference between the web module and the EJB module is made possible. For details on web class loader delegate models, refer to "[2.23.3 Changing the Transfer Model of Web Class Loader](#)".



The web class loader can also load the web module class during the EAR file deployment by changing the web class loader transfer model as shown in the figure below. In these settings, web class loader can load the class before the parent class loader does.

For details on the web class loader transfer model, refer to "[2.23.3 Changing the Transfer Model of Web Class Loader](#)".



Note

- Different connector modules cannot reference each other. For example, RAR2 and RAR3 in the above figure cannot reference each other.
- In the application library that was specified when the EAR or EJB-JAR file was deployed, the following types of reference are not possible:
 - If multiple application libraries were specified in a single deployment unit, those application libraries cannot reference each other. For example, in the above figure applib1 and applib2 cannot reference each other, and applib5 and applib6 cannot reference each other.
 - Resources loaded by the Connector class loader and the common class loader cannot be referenced from the application library. For example, in the above figure RAR2 cannot be referenced from applib1 and applib5.

2.23.3 Changing the Transfer Model of Web Class Loader

In the default setting of this product, the web class loader transfers the class search to the parent class loader. As a result, the web module class can be loaded by the Application class loader during the EAR file deployment.

It is also possible to configure the settings so that the web class loader can search the class before the parent class loader does.

Note

Even if the web class loader delegate model is set so that the class lookup is delegated to the parent class loader afterwards, the class specified in the WAR file manifest class path is loaded by the Application class loader.

Archive the class specified in the WAR file manifest class path under WEB-INF/classes or WEB-INF/lib.

Performing the transfer to the parent class loader first

The parent class loader is transferred before the search by the web class loader. This setting is required if the web application accesses the EJB component, or the web application is the web service client or the endpoint.

Performing the transfer to the parent class loader later

Search by the web class loader is performed before the search by the parent class loader. This setting is only recommended if the web module is not linked with another module.

Settings Method

Use the delegate attribute of the sun-web.xml class-loader element.

Setting value	Explanation
true (this is the default setting)	Transfer to the parent class loader occurs first.
False	Transfer to the parent class loader occurs later.

For details on the method that is used to set sun-web.xml, refer to "Interstage Web Application deployment descriptor (sun-web.xml)" in the "Java EE Application Development" chapter.

Exceptions for Transfer

There are two exceptions for the transfer of the web class loader.

JDK class

JDK class is always loaded first so that the user cannot replace this class.

Class whose name begins with a specific package name

Classes with names that start with the following package names always transfer the load to the parent class loader first. These classes cannot replace the class with the child class loader.

Package name	Type
javax	Java extensions
sun	GF core application server class
org.xml.sax	SAX 1 & 2
org.w3c.dom	DOM 1 & 2
org.apache.taglibs.standard	Taglibs
com.sun.faces	Faces
org.apache.commons.logging	commons logging

2.23.4 Setting Classes Used by IJServer Cluster

Common Directory

This archives all common classes used in the IJServer cluster. To enable this setting, the IJServer cluster must be restarted.

Libraries used by the user in applications, such as JDBC driver, can be set freely in the common directory.

Windows32/64

jar: [Java EE common directory]\domains\interstage\lib

Class: [Java EE common directory]\domains\interstage\lib\classes

Solaris32/64 Linux32/64

jar: [Java EE common directory]/domains/interstage/lib

Class: [Java EE common directory]/domains/interstage/lib/classes

Classpath Suffix

This sets the common classes used in the IJServer cluster. To enable this setting, restart the IJServer cluster.

Use the Interstage Java EE Admin Console or the `asadmin` command to set the classpath suffix.

- [Settings] > [<cluster name>-config] > [JVM Settings] > [Path settings] tab in the Interstage Java EE Admin Console
- The `asadmin` command set subcommand
"Definition Items of the `configs.config.java-config`" > "Class path suffix"

Application Library

Specify the common classes used in the application at the time of the deployment using the full path of the JAR file. Directories in which class files are archived cannot be specified.

To change the application library, either replace the JAR file that was specified using the full path with a JAR file of the same name, or redeploy the JAR file.

Use the Interstage Java EE Admin Console or the `asadmin` command for the deployment. For details, refer to "Deploying the Application" in the "Java EE Application Operation" chapter.

2.23.5 Setting the XML Parser

This section explains the settings for the XML parser used by the IJServer cluster.

The XML parser implementation used by the IJServer cluster is determined using the service API. To change the XML parser implementation used by the IJServer cluster, set the JAR file for the XML parser implementation containing the service provider configuration file in the IJServer. For details on the settings, refer to "2.23.4 Setting Classes Used by IJServer Cluster".

If this is not set, the "Xerces" XML parser contained in JDK is used.

For details on the service API, refer to the JAXP specifications.

For details on the service provider configuration file, refer to the Java specifications.

- To overwrite the JAXP interface level;

Add the directory that the JAXP interface JAR libraries are installed in to the "java.endorsed.dirs" system property. For details, refer to the "Standard override mechanism that Java is already approved" Java document.

Only XML parsers more recent than the one included in JDK5.0 (JAXP1.3) can be specified. If the specified XML parser is older than JAXP1.3, then the application might fail to start up.

If the version of the XML parser that was set in the Interstage Java EE DAS service is older than JAXP1.3, then the Interstage Java EE Admin Console cannot be used. In this case, use the `asadmin` command to reset the XML parser to a version more recent than JAXP1.3.

2.23.6 Note About the Use of the Class Loader

This section explains the points that should be noted on the use of the class loader.

Note on the Use of Connector

To run a connector that uses a native library, set the path to the native library in `path/library` path to make it possible to reference it from the deployed IJServer cluster or Interstage Java EE DAS service.

If the Interstage Java EE Admin Console is used for the settings, configure the settings according to the following procedure:

1. In the tree view, select [Settings], and then select the settings name.
2. Click the [JVM Settings] tab.
3. Click the [Path settings] tab.
4. In the [Native Library Path Suffix] field, specify the entry to be added to the native library path.



.....

Specifying an entry

Specify the path for the stored native library. To reference a native library that is contained in the connector module, specify the native library storage directory that is under the connector module extraction directory (for details on this directory, refer to "[2.2.1 Interstage Java EE DAS Service File Configuration](#)").

.....

5. Click [Save].
6. Restart the IJServer cluster or Interstage Java EE DAS service for the environment settings target.

To specify the entry from the command, set the entry in the native library path suffix using the `asadmin` command `set` subcommand, then restart the IJServer cluster or Interstage Java EE DAS service. For details, refer to "Java VM Definition Items" in the "List of Definition Items" chapter.

Note on the Use of JNI with the Java EE Application

The same Native module cannot be loaded by the class loader. If classes that use JNI are included in the application (EAR, ejb-jar, WAR, RAR) and the same native module is loaded by another class loader, `java.lang.UnsatisfiedLinkError` is thrown.

If `java.lang.UnsatisfiedLinkError` is thrown, classes that use JNI (the native method implementation class) should be stored in the common directory for classes that use JNI or set in the class path suffix and not included in the application.

If classes that use JNI are included in the application (EAR, ejb-jar, WAR, RAR), the application cannot use the HotDeploy.

If the HotDeploy is used, `java.lang.UnsatisfiedLinkError` is thrown and the HotDeploy may fail. In this case, the IJServer cluster must be restarted.

If the HotDeploy is used in an application that uses JNI, store classes that use JNI in the common directory or set them in the class path suffix. To replace classes that use JNI, the IJServer cluster must be restarted.

Notes on Accessing Resources in the JAR File Archived under WEB-INF/lib

If the resources in the JAR file archived under `WEB-INF/lib` are accessed by calling `getResource/getResourceAsStream` of the web class loader, the JAR file is unpacked in the IJServer class management directory at the time of the first access. For this reason, if there are many resources in the JAR file, performance might deteriorate at the time of the first access.

This problem can be avoided by archiving the corresponding JAR file in a directory other than `WEB-INF/lib` and setting it for a class that is used by the IJServer cluster.

For details on the settings, refer to "[2.23.4 Setting Classes Used by IJServer Cluster](#)".

2.24 Lifecycle Module

The lifecycle module is the Java application that is called when a lifecycle event occurs at the start and normal stop of the IJServer cluster.

The lifecycle module is initialized when the IJServer cluster starts up and receives an event notice at each lifecycle phase. Processing such as database initialization/recovery processing and the EJB call (only `READY_EVENT`) can be performed by creating and setting the lifecycle module.



.....

The lifecycle module is not called when forced stop is performed.

.....

Relationship between the IJServer Cluster and the Lifecycle Module

When IJServer cluster concurrency is used, the lifecycle module is executed in all VMs.

Lifecycle Events

Lifecycle events occur when the start/normal stop processing (lifecycle) status of the IJServer cluster is changed. The table below shows the process timing of the handle method that is implemented by the IJServer cluster lifecycle event and lifecycle module. These events are executed in the order shown in the table (top first, bottom last).

Start processing

Event	Timing of handleEvent method processing
INIT_EVENT	This is processed prior to the start of the web container and the EJB container.
STARTUP_EVENT	This is processed prior to the loading of the deployed application and initialization.
READY_EVENT	This is processed after the loading of the deployed application, after initialization, and after the acceptance of accesses to the Servlet and EJB application has started.

Stop processing

Event	Timing of handleEvent method processing
SHUTDOWN_EVENT	This is processed after the acceptance of accesses from the web server connector has stopped, and after the application is discarded.
TERMINATION_EVENT	This is processed after the web container and the EJB container are stopped.

2.24.1 Design Procedure for the Lifecycle Module

Obtaining javax.naming.InitialContext

JNDI naming Context can be obtained when the following events are notified:

- STARTUP_EVENT
- READY_EVENT
- SHUTDOWN_EVENT

InitialContext can also be obtained when the events not shown above are notified. However the behavior of the process that uses the obtained InitialContext cannot be guaranteed.

Resource Lookup

Resource lookup is possible when the following events are notified:

- JDBC resource
 - STARTUP_EVENT
 - READY_EVENT
 - SHUTDOWN_EVENT
- EJB applications operating in the server instance that the lifecycle module runs in
 - READY_EVENT
- EJB applications operating in other server instances
 - STARTUP_EVENT
 - READY_EVENT
 - SHUTDOWN_EVENT

It may also be possible to obtain resources when events not shown above were notified, however the behavior of the processing using the resources that were obtained cannot be guaranteed.

The success or failure of the obtained resource operation depends on the resource settings and the status of the operation target service.

Note

To use lookup for EJB applications from the lifecycle module, refer to the object from the Naming Service. The lifecycle module does not contain the deployment descriptor, therefore the Environment Naming Context cannot be used.

2.24.2 Operation Procedure for the Lifecycle Module

Settings of the Lifecycle Module

The lifecycle module is set using the Interstage Java EE Admin Console or the `asadmin` command.

- Settings screen

[Applications] > [Lifecycle Modules]

- Command

Create: `create-lifecycle-module` subcommand

Define: `set` subcommand "Definition Items of the applications.lifecycle-module"

Note

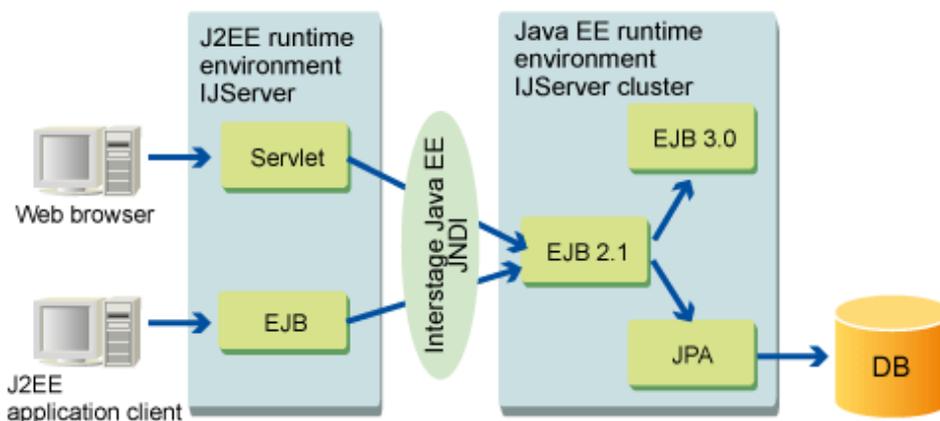
- To enable the settings, the IJServer cluster must be restarted.
- The class path specified when the lifecycle module is registered is used for the setup of the lifecycle module class loader. The lifecycle module class loader is the class loader that loads the lifecycle module. The lifecycle module or user creation class used by the lifecycle module must be set in the class path specified when the lifecycle module is registered.

2.25 J2EE/Java EE Linkage Function

This section explains the J2EE/Java EE linkage features.

2.25.1 Calling an Application in a Java EE Runtime Environment from a J2EE Runtime Environment

The Interstage Java EE JNDI function is used to call an EJB application on an IJServer cluster in a Java EE runtime environment can be called from a J2EE application on an IJServer in a J2EE runtime environment.

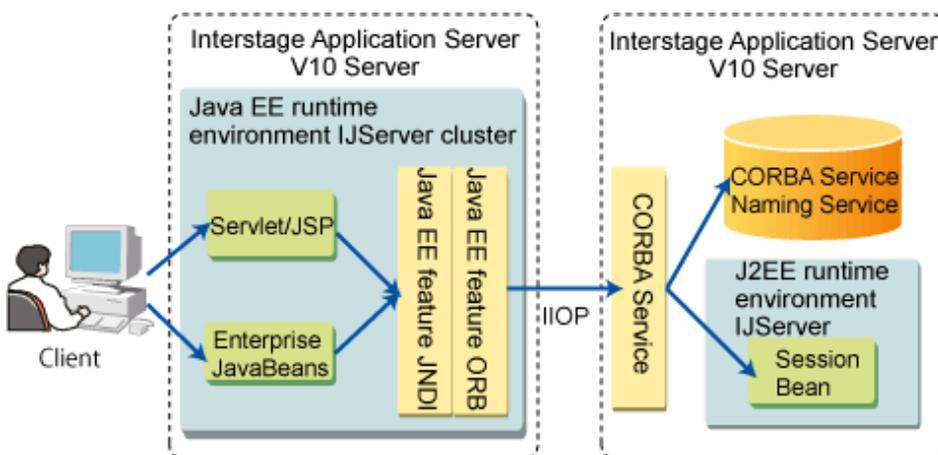


Note

- The only applications that can be called in the above format are EJB 2.1 or earlier EJB applications in which the Home or Remote interface is implemented. EJB applications in which only EJB 3.0 business interfaces are implemented, and resources such as JDBC and JMS, cannot be called.
- An application on an IJServer cluster in a Java EE runtime environment cannot be called using the J2EE runtime environment launch or downtime execution classes.
- An application on an IJServer cluster in a Java EE runtime environment cannot be called from a J2EE runtime environment V6 or V8-compatible IJServer.
- J2EE applications on J2EE runtime environment IJServers run as Java EE Java SE stand-alone clients. The application client container is not used. For this reason, functions that cannot be used in Java SE stand-alone clients (such as IIOP communication authentication and SSL communication) cannot be used.

2.25.2 Calling an Application in a J2EE Runtime Environment from a Java EE Runtime Environment

An EJB application that is running on a J2EE runtime environment IJServer can be called from an application that is running on a Java EE runtime environment IJServer cluster using IIOP communication. The Interstage Java EE JNDI feature is used to call the EJB application on the J2EE runtime environment IJServer.

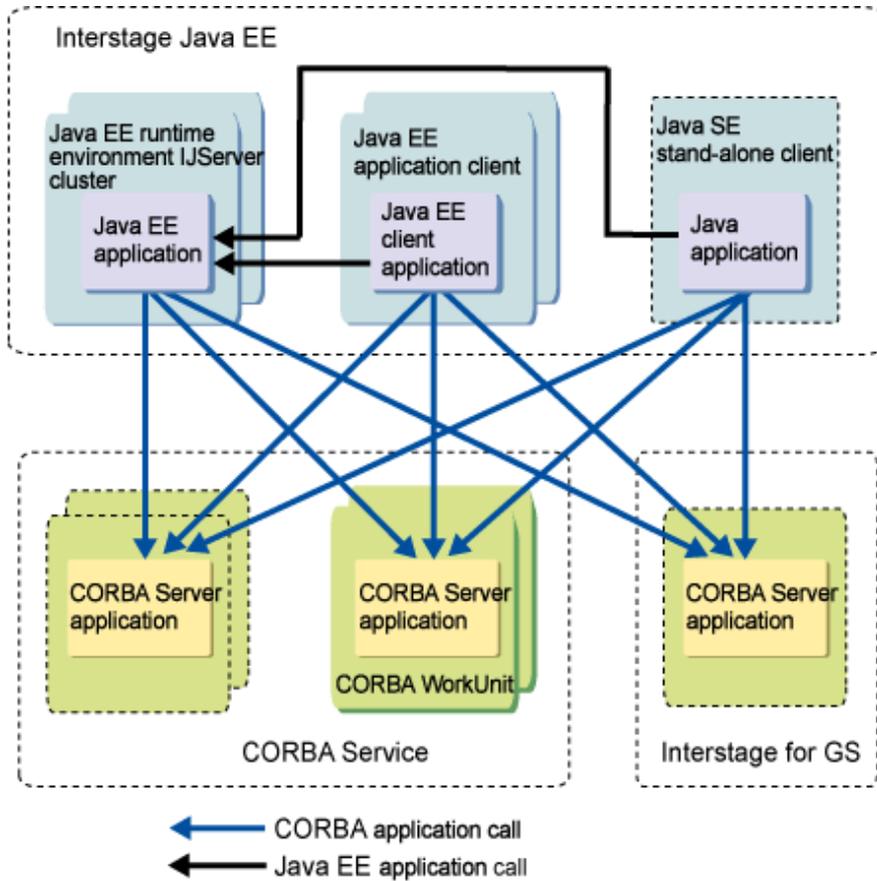


Note

- The J2EE and Java EE runtime environments must both have been built in an environment of Interstage V10 or later.
- It is possible to call applications from a different Java version to the one used. However, in this case the application should be used with a low Java version feature range.
- The only EJB application that can be called is the Session Bean. The Entity Bean and Message-driven Bean cannot be called, therefore each application should be called via the Session Bean.
- As the J2EE runtime environment IJServer setting, in the J2EE Interstage Management Console
[System] > [WorkUnit] > [IJServer Name] > [Settings] > [EJB Container Settings] >
[Use Distributed Transactions for EJB applications?], select "No" (the default setting).
- The EJB term security features (method permission, security-related methods, resource connector management feature, run-as security feature) should not be used.

2.26 CORBA Service Application Call

A CORBA Server application that is running on a Multilanguage Service CORBA Service environment can be called from a CORBA Client application on a Java EE runtime environment using IIOP communication.



The features that can be used in the CORBA Client application on the Java EE runtime environment are shown in the table below.

Feature name	Multilanguage Service CORBA Service	Java EE CORBA
Statically started interfaces	Yes	Yes
Code Conversion Feature (*1)	Yes	Yes
Development of business applications for ORB connections with GS	Yes	Yes
ORB connections with GS (operation) (*2)	Yes	Yes
Java Applets	Yes	No
Dynamically started interfaces	Yes	No
CORBA Server Features	Yes (CORBA client > CORBA server)	No (CORBA client > Java EE server)
HTTP Tunneling	Yes	No
SSL Communication	Yes	No
Load Balancing Feature	Yes	No
Interface Repository Service	Yes	No

Yes: Supported

No: Not supported

*1) For details, refer to "Code Types that can be Used"

*2) Only JDK6 is supported.

Note

- The connection target CORBA Server application must have been built in an environment of Interstage V9.2 or later or Interstage for GS.
- The "any type" and "union" cannot be used.

Code Types that can be Used

The connection target CORBA Server application code types and combinations in which code conversion is possible are shown below.

CORBA Server Application Code Type		UNICODE	UTF8	EUC(S90)	EUC(U90)	ShiftJIS	ShiftJIS MS	JEF ASCII	JEF Lowercase	JEF Kana
		UNICODE	UTF8	EUC	U90	SJIS	SJISMS	JEF_ASCII	JEF_LOWER	JEF_KANA
Client	UNICODE	B	A	A (*1)	C	A (*1)	A (*1)	A (*2)	A (*2)	A (*2)

A: Code conversion target

B: Not a target of code conversion (not converted)

C: Code conversion not possible

*1) Only the string type supports EUC, SJIS, and SJISMS. EUC, SJIS, and SJISMS are not supported in the wstring and wchar types.

*2) In Java EE, one of the following must be used:

- JDK/JRE6 or later bundled with Interstage Application Server
- JDK/JRE6 or later provided in Interstage Studio

Note

- If the CORBA Server application uses EUC encoding, only the character codes in JISX 0201, 0208, and 0212 are supported. Special characters and external characters (user-defined characters) cannot be used.
- If the CORBA Server application uses SJIS encoding, unique characters added in Windows-31J (NEC special characters/IBM extended characters) and external characters (user-defined characters) cannot be used.
- If code conversion is executed for an undefined character, the system exception DATA_CONVERSION will be notified to the application.

System Properties (JVM Options) that can be Used

The following system properties that can be specified in the Java EE runtime environment can be used:

- IIOP connection wait time monitoring feature
- IIOP communication server method recovery time monitoring feature
- IIOP communication socket send/receive wait time monitoring feature
- IIOP communication client non-communication monitoring feature
- Non-fragment mode
- Maximum message fragment size
- Maximum buffer size for receiving messages

2.27 Time Monitoring Features that can be Used in IIOP Communication

The following time monitoring features can be used in IIOP communication:

- [IIOP Connection Wait Time Monitoring Feature](#)
- [IIOP Communication Server Method Recovery Time Monitoring Feature](#)
- [IIOP Communication Socket Send/Receive Wait Time Monitoring Feature](#)
- [IIOP Communication Client Non-communication Monitoring Feature](#)

2.27.1 IIOP Connection Wait Time Monitoring Feature

If the connection to the server from the client using RMI-IIOP fails because the IJServer cluster has not been started yet or because of a network error, connection retry will be performed. The connection retry for when this connection fails can be specified, and the time for the timeout that is notified to the client can be controlled.

Specify the setting for this monitoring feature in the Java VM option (system property) of the client Java VM.

Note that, in this monitoring feature, the following time monitoring methods can be selected for the "elapsed" value of the property:

- elapsed = false

The connection processing time is not included when testing if [max] has been exceeded.

This is the default value.

- elapsed = true

The connection processing time is included when testing if [max] has been exceeded.

Property Name

com.sun.corba.ee.transport.ORBTCPCConnectTimeouts

Value that is Set

Settings syntax

```
initial:max:backoff:maxsingle:elapsed
```

Item	Content	Value range
initial	The initial retry interval (milliseconds) is set.	1-2147483647
max	The value that determines whether a violation of the overall wait time has occurred (milliseconds) is set. Note that this does not include the connection processing time.	1-2147483647
backoff	The backoff value (integer) is set. Normally, a value between 10 and 100 is set.	1-2147483647

Item	Content	Value range
	<p>The retry interval increases by a value multiplied by (backoff+100)/100 with each retry.</p> <p> Example</p> <p>.....</p> <p>When backoff is 20, the retry interval will be 1.2 times, and when backoff is 100, the retry interval will be double.</p> <p>.....</p>	
maxsingle	The maximum retry interval per single occurrence (milliseconds) is set.	1-2147483647
elapsed	<p>Specify whether the connection processing time is included when testing if [max] has been exceeded.</p> <ul style="list-style-type: none"> - true <p>The connection processing time is included when testing if [max] has been exceeded.</p> <ul style="list-style-type: none"> - false <p>The connection processing time is not included when testing if [max] has been exceeded.</p> <p>This property can be omitted. If it is omitted, the default value "false" will be used.</p>	<ul style="list-style-type: none"> - true - false

Default Value

```
250:60000:100:5000:false
```

Setting Method

- When the IJServer cluster is used as the client

Specify the setting in the Java VM option.

```
-Dcom.sun.corba.ee.transport.ORBTCPCConnectTimeouts=Value that is set
```

- When the application client container is used

Specify the setting in the VMARGS environment variable.

Windows32/64

```
set VMARGS=-Dcom.sun.corba.ee.transport.ORBTCPCConnectTimeouts=Value that is set
```

Solaris32/64 Linux32/64

```
VMARGS=-Dcom.sun.corba.ee.transport.ORBTCPCConnectTimeouts=Value that is set
export VMARGS
```

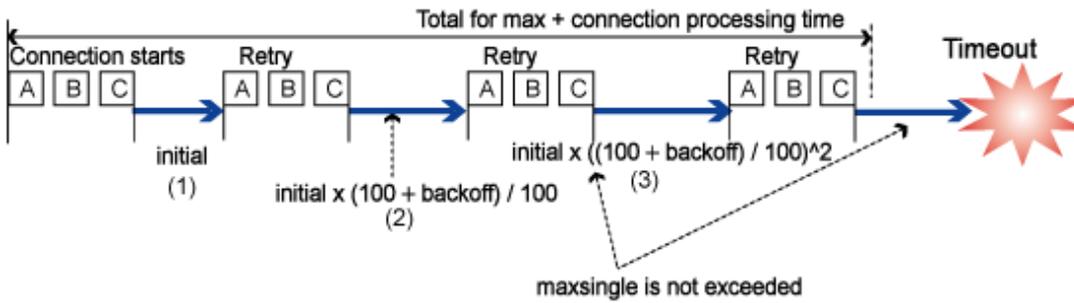
- When a stand-alone client is used

Specify the setting in the Java VM option.

```
-Dcom.sun.corba.ee.transport.ORBTCPCConnectTimeouts=Value that is set
```

When False was Set for the Elapsed Value

The figure below shows the processing that occurs when the connection processing time is not included when testing if [max] has been exceeded.



Note: A, B, and C represent connection destinations.

1. Test the connections to A, B, and C connection destinations, then wait for time (1).
2. Retry the connection.
3. Test the connections to A, B, and C connection destinations, then wait for time (2).
4. Retry the connection.
5. Test the connections to A, B, and C connection destinations, then wait for time (3).
6. Repeat steps 4 and 5 until the elapsed time exceeds "Total for max + connection processing time".

Note

- The times in (1), (2), and (3) will be longer because of the retry count and the "backoff" value, however the "maxsingle" interval will not be exceeded in this case.
- The test to determine if the overall wait time [max] has been exceeded will be executed each time the final connection in the connection destination list (C) fails.
- Even if the overall wait time [max] is exceeded during connection processing or wait processing, the notification of the timeout to the client will occur immediately after the final connection in the connection destination list fails. Therefore there will be a difference between the time when the timeout is notified and the time that was set for [max].

Example

The behavior examples shown in the table below are for the following cases:

- There are multiple connection destinations (A, B, and C).
- The property setting is "initial:max:backoff:maxsingle:elapsed=100:250:100:200:false".
- It takes 50 milliseconds until the connection error is detected.

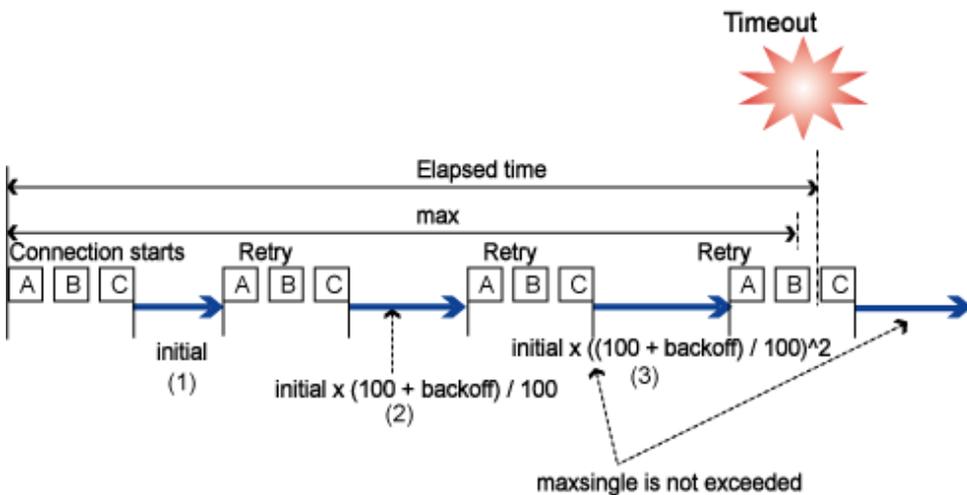
Elapsed time (Milliseconds)	Total wait time (Milliseconds)	Retry behavior related to the connection
0	0	Connection test (connection destination A).
50	0	A connection failure was detected, so the connection to the next connection destination is tested (connection destination B).
100	0	A connection failure was detected, so the connection to the next connection destination is tested (connection destination C).
150	0	A connection failure was detected, so there will be a wait for retry (100 milliseconds).
250	100	Connection test retry (connection destination A).
300	100	A connection failure was detected, so the test connection to the next connection destination is retried (connection destination B).

Elapsed time (Milliseconds)	Total wait time (Milliseconds)	Retry behavior related to the connection
350	100	A connection failure was detected, so the test connection to the next connection destination is retried (connection destination C).
400	100	A connection failure was detected, so there will be a wait for retry (200 milliseconds).
600	300	Connection test retry (connection destination A).
650	300	A connection failure was detected, so the test connection to the next connection destination is retried (connection destination B).
700	300	A connection failure was detected, so the test connection to the next connection destination is retried (connection destination C).
750	300	A connection failure was detected, and the total wait time has exceeded max, so an exception will be notified to the application.

When True was Set for the Elapsed Value

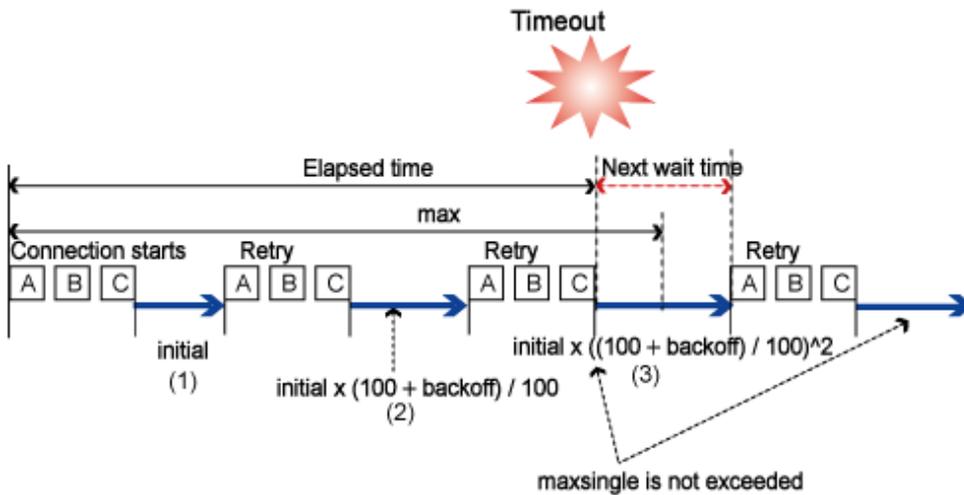
The figure below shows the processing that occurs when the connection processing time is included when testing if [max] has been exceeded.

When the time that has elapsed since the start of connection processing exceeds the overall wait time [max]



Note: A, B, and C represent connection destinations.

When the time that has elapsed since the start of connection processing exceeds the overall wait time [max] during the wait



Note: A, B, and C represent connection destinations.

1. Test the connections to A, B, and C connection destinations, then wait for time (1).
2. Retry the connection.
3. Test the connections to A, B, and C connection destinations, then wait for time (2).
4. Retry the connection.
5. Test the connections to A, B, and C connection destinations, then wait for time (3).
6. Repeat steps 4 and 5 until the elapsed time exceeds the overall wait time [max].

Note

- The times in (1), (2), and (3) will be longer because of the retry count and the "backoff" numerical value, however the "maxsingle" interval will not be exceeded in this case.
- The test to determine if the overall wait time [max] has been exceeded will be executed each time the connection to the connection destination list (A, B, and C) fails.
- When the time that has elapsed since the start of connection processing exceeds the overall wait time [max]

Even if the overall wait time [max] is exceeded during connection processing, the notification of the timeout to the client will occur after each connection fails. Therefore there will be a difference between the time when the timeout is notified and the time that was set for [max].

- When the time that has elapsed since the start of connection processing exceeds the overall wait time [max] during the wait

If a connection failure was detected when testing the connection to connection destination C, and the elapsed time + the next wait time exceeds [max], a timeout will be notified without the following wait processing being performed.

In this case, it will be determined that the timeout occurred before the time that was set for [max], so there will be a difference between the time when the timeout is notified and the time that was set for [max].

Example

- **When the time that has elapsed since the start of connection processing exceeds the overall wait time [max]**

The behavior examples shown in the table below are for the following cases:.

- There are multiple connection destinations (A, B, and C).
- The property setting is "initial:max:backoff:maxsingle:elapsed=100:350:100:200:true".

- It takes 50 milliseconds until the connection error is detected.

Elapsed time (Milliseconds)	Total wait time (Milliseconds)	Retry behavior related to the connection
0	0	Connection test (connection destination A).
50	0	A connection failure was detected, so the connection to the next connection destination is tested (connection destination B).
100	0	A connection failure was detected, so the connection to the next connection destination is tested (connection destination C).
150	0	A connection failure was detected, so there will be a wait for retry (100 milliseconds).
250	100	Connection test retry (connection destination A).
300	100	A connection failure was detected, so the test connection to the next connection destination is retried (connection destination B).
350	100	A connection failure was detected, and the elapsed time has exceeded max, so an exception will be notified to the application.

- **When the time that has elapsed since the start of connection processing exceeds the overall wait time [max] during the wait**

The behavior examples shown in the table below are for the following cases:

- There are multiple connection destinations (A, B, and C).
- The property setting is "initial:max:backoff:maxsingle:elapsed=100:500:100:200:true".
- It takes 50 milliseconds until the connection error is detected.

Elapsed time (Milliseconds)	Total wait time (Milliseconds)	Retry behavior related to the connection
0	0	Connection test (connection destination A).
50	0	A connection failure was detected, so the connection to the next connection destination is tested (connection destination B).
100	0	A connection failure was detected, so the connection to the next connection destination is tested (connection destination C).
150	0	A connection failure was detected, so there will be a wait for retry (100 milliseconds).
250	100	Connection test retry (connection destination A).
300	100	A connection failure was detected, so the test connection to the next connection destination is retried (connection destination B).
350	100	A connection failure was detected, so the test connection to the next connection destination is retried (connection destination C).
400	100	A connection failure was detected, and the elapsed time + the next wait time (200 milliseconds) has exceeded max, so an exception will be notified to the application.

After the overall wait time [max] violation is detected, an exception that includes the following exception is notified to the client.

```
org.omg.CORBA.COMM_FAILURE: vmcid: SUN minor code: 220 completed: No
```

Additionally, when the application client container is used, the container will communicate with the server when it starts up in order to perform dependency injection, for example. For this reason, the application client container will fail to start because of the exception below. In this case, check whether the following exception information is output to the log when the application client container starts up.

```
javax.naming.CommunicationException: Can't find SerialContextProvider [Root exception is  
org.omg.CORBA.COMM_FAILURE: vmcid: SUN minor code: 220 completed: No]
```

Note

RMI-IIOP is not used for calls in the IJServer cluster process, therefore monitoring will not be performed.

2.27.2 IIOP Communication Server Method Recovery Time Monitoring Feature

In the IIOP Service, there is a timeout monitoring feature for monitoring the operational status of the application. While the client/server application is running, it monitors the period from when the server method was issued in the client until that method is returned to the client.

Specify the setting for this monitoring feature in the Java VM option (system property) of the client Java VM.

Property Name

`com.sun.corba.ee.transport.ORBWaitForResponseTimeout`

Value that is Set

Timeout time (Milliseconds)

Value Range

1-2147483647

Note

Even if a value less than 1 is set, an error will not occur in the parameter check, however a timeout will immediately occur at the time of the actual communication. For this reason, set a value of 1 or greater.

Default Value

1800000 (30 minutes)

Setting Method

- When the IJServer cluster is used as the client

Specify the setting in the Java VM option.

```
-Dcom.sun.corba.ee.transport.ORBWaitForResponseTimeout=Value that is set
```

- When the application client container is used

Specify the setting in the VMARGS environment variable.

Windows32/64

```
set VMARGS=-Dcom.sun.corba.ee.transport.ORBWaitForResponseTimeout=Value that is set
```

Solaris32/64 Linux32/64

```
VMARGS=-Dcom.sun.corba.ee.transport.ORBWaitForResponseTimeout=Value that is set  
export VMARGS
```

- When a stand-alone client is used

Specify the setting in the Java VM option.

```
-Dcom.sun.corba.ee.transport.ORBWaitForResponseTimeout=Value that is set
```

If the wait time until the server method is returned to the client exceeds the value that was set, an exception that includes the following exception is notified to the client.

```
org.omg.CORBA.COMM_FAILURE: vmcid: SUN minor code: 219 completed: Maybe
```

When the EJB Business interface is used, the javax.ejb.EJBException exception message shown below will be notified.

At this time, requests that are being processed in the server will not be canceled. Additionally, the connection between the client and the server will remain open.

```
java.rmi.MarshalException: CORBA COMM_FAILURE 1398079707 Maybe; nested exception is:
org.omg.CORBA.COMM_FAILURE: vmcid: SUN minor code: 219 completed: Maybe
```



RMI-IIOP is not used for calls in the IJServer cluster process, therefore monitoring will not be performed.

2.27.3 IIOP Communication Socket Send/Receive Wait Time Monitoring Feature

If, as a result of a network error or delay, not all the data for the requests from the client or the responses from the server could be received or sent at once, there will be a retry to read or write the remaining data.

The connection retry for when this send or receive processing fails can be specified, and the time for the timeout that is notified to the client can be controlled.

Specify the setting for this monitoring feature in the Java VM option of the client Java VM or IJServer cluster.

Property Name

com.sun.corba.ee.transport.ORBTCPTimeouts

Value that is Set

Settings syntax

```
initial:max:backoff:maxsingle
```

Item	Content	Value range
initial	The initial retry interval (milliseconds) is set.	1-2147483647
max	The value that determines whether a violation of the overall wait time has occurred (milliseconds) is set.	1-2147483647
backoff	<p>The backoff value (integer) is set. Normally, a value between 10 and 100 is set.</p> <p>The retry interval increases by a value multiplied by (backoff+100)/100 with each retry.</p> <p> Example</p> <p>When backoff is 20, the retry interval will be 1.2 times, and when backoff is 100, the retry interval will be double.</p>	1-2147483647
maxsingle	The maximum retry interval per single occurrence (milliseconds) is set.	1-2147483647

Default Value

```
2000:6000:20:2147483647
```

Setting Method

- When the IJServer cluster is used

Specify the setting in the Java VM option.

```
-Dcom.sun.corba.iiop.transport.ORBTCPTimeouts=Value that is set
```

- When the application client container is used

Specify the setting in the VMARGS environment variable.

Windows32/64

```
set VMARGS=-Dcom.sun.corba.iiop.transport.ORBTCPTimeouts=Value that is set
```

Solaris32/64 Linux32/64

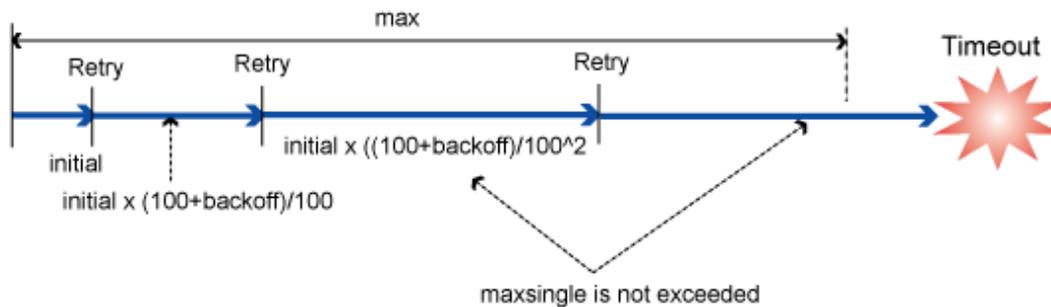
```
VMARGS=-Dcom.sun.corba.iiop.transport.ORBTCPTimeouts=Value that is set
export VMARGS
```

- When a stand-alone client is used

Specify the setting in the Java VM option.

```
-Dcom.sun.corba.iiop.transport.ORBTCPTimeouts=Value that is set
```

In the figure below, the wait time and maximum wait time between retries are explained.



When the request is issued from the EJB client to the Enterprise Bean that has been deployed to the IJServer cluster using RMI-IIOP, the client writes the request data to the socket and the server reads the request data from the socket. Additionally, when the server returns the response to the client, the server writes the response data to the socket and the client reads the response data from the socket.

If the "cannot write/read" state exceeds the "initial" time during the processing to write/read this socket, the processing to write/read the remaining data will be retried.

The interval until the following retry will be longer because of the retry count and the "backoff" value, however the "maxsingle" interval will not be exceeded in this case. Even if the "max" overall wait time is exceeded, if the write/read processing is not complete a WARNING message will be notified and the connection will be broken.

Note that, if an error was detected during request send processing on the client-side, for example the "max" overall wait time is exceeded when the requests are received on the server-side and sent on the client-side, processing to cancel request data that has already been sent on the server-side will be performed.

If an exception has not been notified to the application, it can be determined that the processing to send the requests has succeeded.

The processing for when the read/write wait time for the socket was exceeded during processing is explained below.

The processing content is different for when the wait time was exceeded while requests were being sent/received from the client, and when the wait time was exceeded while responses were being sent/received from the server.

When the wait time (max) was exceeded while requests were being received in the server

Requests cannot be executed. IOP00410229 message will be output to the server log in the server.

In the client, processing to cancel requests that are being sent will be performed and an exception will be notified.

When the EJB Business interface is used, the following javax.ejb.EJBException exception message will be notified:

```
java.rmi.MarshalException: CORBA COMM_FAILURE 1398080289 Maybe; nested exception is:  
org.omg.CORBA.COMM_FAILURE: vmcid: SUN minor code: 801 completed: Maybe
```

or

```
java.rmi.MarshalException: CORBA COMM_FAILURE 1398079696 Maybe; nested exception is:  
org.omg.CORBA.COMM_FAILURE: vmcid: SUN minor code: 208 completed: Maybe
```

or

```
java.rmi.MarshalException: CORBA COMM_FAILURE 1398079691 No; nested exception is:  
org.omg.CORBA.COMM_FAILURE: vmcid: SUN minor code: 203 completed: No
```

To change this monitoring feature setting as management, execute this task in the server.

When the wait time (max) was exceeded while responses were being received in the client

A message will not be output to the server log in the server.

The client and server communication is broken, and the javax.ejb.EJBException or java.rmi.RemoteException exceptions are notified by the interface that accesses the client. The exception message will also contain the IOP00410229 message.

To change this monitoring feature setting as management, execute this task in the client.

When the wait time (max) was exceeded while requests were being sent in the client

Requests cannot be executed. The IOP00410225 message is output to the client, and processing to cancel the request is performed and an exception will be notified. When the EJB Business interface is used, the following javax.ejb.EJBException exception message will be notified:

```
java.rmi.MarshalException: CORBA COMM_FAILURE 1398079713 No; nestedexception is:  
org.omg.CORBA.COMM_FAILURE: vmcid: SUN minor code: 225 completed: No
```

or

```
java.rmi.MarshalException: CORBA COMM_FAILURE 1398079691 No; nested exception is:  
org.omg.CORBA.COMM_FAILURE: vmcid: SUN minor code: 203 completed: No
```

At this time, the IOP00810211 message will be output to the connection destination server log.

To change this monitoring feature setting as management, execute this task in the client.

When the wait time (max) was exceeded while responses were being sent in the server

The IOP00410225 message will be output to the server log in the server.

The client and server communication is broken, and the javax.ejb.EJBException or java.rmi.RemoteException exceptions are notified by the interface that accesses the client.

The exception message will also contain the IOP00410229 message.

To change this monitoring feature setting as management, execute this task in the server.

Note

- RMI-IIOP is not used for calls in the IJServer cluster process, therefore monitoring will not be performed.
- If a violation of the wait time (max) was detected, increase the value that was set for the wait time (max).
- If the wait time (max) was exceeded when multiple requests were being processed at the same time on the server-side, IOP01000001, IOP00710220, IOP00810202, or IOP00810240 may be notified as a result of a follow-on communication data error.

2.27.4 IIOP Communication Client Non-communication Monitoring Feature

In the IIOP Service, when the request is sent from the client, the state of non-communication to the server is monitored, and communication is not performed for a fixed period, reconnection will be possible after the connection is broken.

Specify the setting for this monitoring feature in the Java VM option of the client Java VM or IJServer cluster.

Property Name

`com.sun.corba.ee.transport.ORBClientIdleConnectTimeouts`

Value that is Set

Timeout time (Milliseconds)

Value Range

0-2147483647

If 0 is set, client non-communication monitoring will not be performed.

If a value outside this range is specified, the UTIL6009 message will be notified to the application.

If a value outside this range is specified in the IJServer cluster, the UTIL6009 message will be notified when the IJServer cluster starts up, and the IJServer cluster startup will fail.

Default Value

480000 (8 minutes)

Setting Method

- When the IJServer cluster is used as the client

Specify the setting in the Java VM option.

```
-Dcom.sun.corba.ee.transport.ORBClientIdleConnectTimeouts=Value that is set
```

- When the application client container is used

Specify the setting in the VMARGS environment variable.

Windows32/64

```
set VMARGS=-Dcom.sun.corba.ee.transport.ORBClientIdleConnectTimeouts=Value that is set
```

Solaris32/64 Linux32/64

```
VMARGS=-Dcom.sun.corba.ee.transport.ORBClientIdleConnectTimeouts=Value that is set  
export VMARGS
```

- When a stand-alone client is used

Specify the setting in the Java VM option.

```
-Dcom.sun.corba.ee.transport.ORBClientIdleConnectTimeouts=Value that is set
```

When this monitoring feature is used and the connection from the server is broken as a result of the load balancer (IPCOM) or firewall non-communication monitoring time, a new connection will be created on the client-side, therefore the connection from the client will be executed normally.

Chapter 3 Java EE Application Development

This chapter explains the development process of the Java EE application and the deployment descriptor.

3.1 Creating the Application

This section describes how to create the application.

3.1.1 Preparatory Tasks for Java EE Applications

Refer to the Java EE rules and sub rules, and create an application that follows those rules.

Refer to the Java EE rules and sub rules for the deployment descriptor as well. Annotation is supported by the Java EE rules, and the contents that are defined in the deployment descriptor can now be described in the source code. For this reason, the deployment descriptor is used to overwrite the settings at the time of deployment.

Interstage Deployment Descriptor Settings

The deployment descriptor ('Interstage deployment descriptor') that defines the behavior of this product can be included in the deployment module. For details, refer to "[3.2.3 Interstage Deployment Descriptor](#)".

Class File Packaging

Class files that were created as programs are packaged.

Package the files according to a method that is based on the Java EE rules.

- J2EE application clients are stored as jar files and packaged.
- Web applications are stored as WAR files and packaged.
- EJB applications are stored as jar files and packaged.
- Resource adapters are stored as rar files and packaged.

The above packages that are created for each application can also be packaged as Enterprise ARchive (EAR) files. Accordingly, all applications used in the operation can now be distributed as one package.

3.1.2 Developing Web Service Applications

The web application is developed as a Java EE application module that follows Web Services for Java EE (the EAR module that contains WAR, ejb-jar, or both) by using JAX-WS for API.

The web service application classes are created and compiled, and packaged in the Servlet 2.5 WAR module (for JAX-WS endpoints) or EJB 3.0 ejb-jar module (for Stateless Session Bean).



Information

The XML namespace prefixes that are used in this section are as follows:

Prefix	Namespace
WsdL	http://schemas.xmlsoap.org/wsdl/
Xs	http://www.w3.org/2001/XMLSchema

Example of the Web Service Application Development Procedure

1. Create the endpoint implementation class

The implementation of the web service application is created as one of the following classes. The public method of these classes is the target that is made public as the web service operation. For details on the data types that can be used in the public target method, refer to "3.1.4 Data Types that can be Used in Web Service Communication".

- JAX-WS endpoint
 - The `javax.jws.WebService` annotation is added to any public class.
 - A public constructor without any arguments is required.
 - The data types explained in "3.1.4 Data Types that can be Used in Web Service Communication" can be used for the public target method arguments and return values.
 - For details, refer to the JAX-WS and web services for Java EE specifications.
- Stateless Session Bean
 - The `javax.jws.WebService` annotation is added to the Stateless Session Bean class.
 - The data types explained in "3.1.4 Data Types that can be Used in Web Service Communication" can be used for the public target method arguments and return values.
 - For details, refer to the EJB, JAX-WS, and Web Services for Java EE specifications.



Example

An example in which the JAX-WS endpoint is used for the endpoint implementation class is explained below.

Example: JAX-WS endpoint

```
package stock.server;
@javax.jws.WebService
public class StockQuoteProvider {
    public StockQuoteProvider () {}

    public float getLastTradePrice (String tickerSymbol) {
        return "abc".equals(tickerSymbol)? 1234.0f : 0.0f;
    }
}
```



Note

- Do not use 'xml' or a value that starts with 'xml', regardless of whether this is uppercase or lowercase, in the Java identifier (method, variable, Bean property), `@javax.jws.WebParam` annotation, and `@javax.jws.WebResult` annotation name element.
- Do not specify Java reserved keywords (such as annotations granted to the web service and the 'name' attribute) for elements used in the WSDL file.
- It is recommended that BARE is not specified for the 'parameterStyle' attribute value in the document/literal formats.
- If BARE is specified for both the document/literal formats and the 'parameterStyle' attribute, then the `@javax.jws.WebParam` annotation 'name' attribute must be specified for the out/inout parameter. The correct WSDL cannot be generated if the attribute is not specified.
- If multiple endpoint implementation classes are deployed, do not define same name methods for implementation classes that have the same package name.
- Do not use classes that contain 'jaxws' in the package name as web service applications, or as the parameters, return values, or exceptions of that public method.
- To specify an existing WSDL file in the `javax.jws.WebService` annotation `wSDLLocation` attribute or `webservice.xml` `<wsdl- file>` tag, include the target WSDL file in the module to be deployed and specify the relative URL from the module root.

- For the characters that comprise the endpoint URL (for example, the @javax.jws.WebService annotation serviceName attribute value) or the characters that are converted to the WSDL anyURI type attribute, only use the characters within the valid ASCII range.

2. Compile the endpoint implementation class

Compile the endpoint implementation class. The following JAR file is required for the compile.

Windows32/64

C:\Interstage\F3FMisjee\lib\endorsed\webservices-api.jar

Solaris32/64 **Linux32/64**

/opt/FJSVisjee/lib/endorsed/webservices-api.jar

Specify the above JAR file in the -classpath option of the javac command.



Example

```
javac -classpath C:\Interstage\F3FMisjee\lib\endorsed\webservices-api.jar;. WEB-INF\classes WEB-INF\classes\stock\server\StockQuoteProvider.java
```

3. Packaging

Package the web service application in the WAR/ejb-jar module.



Example

```
>jar cvf StockQuote.war .
```



Note

- If there are classes that are used directly from the web service implementation class and service endpoint interfaces, include all the service endpoint interfaces and related classes in the module, except when the API package name starts with java. or javax.
- It is not recommended that the source files be contained in the WAR module/ejb-jar module. To include source files in the WAR module/ejb-jar module, use the source files that were used to generate the class files.
- When packaging only web service applications in the module, there is no need to include the web application deployment descriptor (web.xml) or EJB application deployment descriptor (ejb-jar.xml) in the module as well. To include these files in the module, take particular note that the Web Services for Java EE 1.2 specifications must be followed correctly.

Deployment and Obtaining/storing WSDL

The module that was packaged is deployed to IJServer cluster in the same way as the normal module.



Example

Example: Deploying the WAR module to the 'IJServerWS' IJServer cluster

```
>ijadmin deploy --target IJServerWS StockQuote.war
```

When the application that was deployed can run, WSDL can be obtained from the URL to which '?wsdl' has been added to the endpoint URL. If servlet-mapping has been specified in the deployment descriptor, the endpoint URL will be the URL that was specified (the same as for Servlet). If this has not been specified, the endpoint URL will be as follows:

JAX-WS endpoint

http://host name:port number/context root/Web service name

Stateless Session Bean

http://host name:port number/Web service name/endpoint name

Each of the above items is explained in the following table:

Item	Explanation
'http'	When SSL is used, this is 'https'.
Host name, port number	Host name and port number that access the deployed host web application. If the port number is the default value, 'port number' can be omitted.
Context root	WAR file context root (the default is the WAR file name minus '.war').
Web service name	Name of the serviceName attribute that was specified in the deployment descriptor or javax.jws.WebService annotation. If this was not specified, 'Service' is added to the class name that does not contain the implementation class package name.
Endpoint name	Name that was specified in the name attribute for the deployment descriptor port component name or javax.jws.WebService annotation. If this was not specified, it is the class name that does not contain the implementation class or interface package name.

Normally, WSDL consists of multiple files according to a mechanism that contains external XML such as the wsdl:import or xs:import elements. Whole sets including import destinations can be obtained using the ijwsimport command.



Example

Example: Obtaining a WSDL set in the ijwsimport command

```
>ijwsimport -nogenerate -s dev\wsdl http://ws.example.com/StockQuote/StockQuoteProviderService?wsdl
```

The WSDL set that was obtained is stored/managed as a web service interface definition.



Note

WSDL that is obtained using the ijwsimport command and saved is used for the registration and management of interface definitions. The content that was obtained, including the URL of the XML containing the wsdl:import element, is saved. The import target file is also obtained and saved together with the WSDL that was specified in the argument of the ijwsimport command. Since the import target file that is saved is not referenced from the import source, however, the WSDL set that was obtained cannot be used as it is.

Providing WSDL in the Web Service Client

WSDL is provided to the web service client developer as a web service interface definition. It can be provided using either of the following methods, but the notification of the URL for obtaining WSDL method is normally used:

- Notification of the URL for obtaining WSDL
 - The above WSDL URL is notified to the web service client developer.
 - Configure the web service client environment settings so that they can access the above WSDL URL.
 - Normally, WSDL is provided according to this method.
- Providing the WSDL set that was obtained and then saved in the ijwsimport command in a file
 - WSDL can only be provided according to this method if it is difficult to provide WSDL using the URL, for example when the web service client environment settings cannot be configured to access the URL, and you understand WSDL and XML Schema sufficiently well to be able to edit them without error.

- The original WSDL URL is specified for the XML containing the wsdl:import and xs:import elements for the WSDL set that was stored in the previous section. For this reason, the file for the WSDL set that was stored cannot be used in the web service client environment.
- Create and attach an appropriate OASIS XML Catalog, or change the full URL that is referenced by the wsdl:import and xs:import elements in the WSDL set to an appropriate relative path so that the file can be used in the web service client environment.
- The WSDL set can be provided to the web service client developer using any method, such as email.
- When changing the content of the WSDL set, make sure that you understand the file content. Only change the reference destination URL, for example the location attribute of the wsdl:import element, or schemaLocation of xs:import. If this is difficult, set up the web service client environment so that it can be used to access the WSDL URL, and provide WSDL using the URL notification.

3.1.3 Developing Web Service Client Applications

The web service client application is developed as a Java EE application or Java EE application client that follows Web Service for Java EE using JAX-WS for API based on the web service WSDL that it used (called).

Obtaining/storing the Web Service WSDL that is Used (called)

The web service interface definition WSDL set that is used is obtained from the web service provider and then stored.

- When the WSDL URL is notified (including when the web service itself is developed)

As shown in "Example of the web service client application development procedure", when the stub is generated the -keep option is specified in the ijwsimport command, and by specifying that URL directly the WSDL set is saved locally. Store and then manage the WSDL set that was saved.

- When the WSDL set is provided as a file

Store and then manage the WSDL that was provided.

The WSDL set that was stored is an important basic resource that is used as the interface definition specifications when communication trouble occurs, for example. Additionally, in order to check whether the interface has been changed, it is strongly recommended that the WSDL set that was obtained is stored and managed together with the web service client application.

Additionally, refer to "3.1.5 WSDL Descriptions that are Used in the Web Service/Web Service Client" and check that there are no problems in the definition content of the WSDL set that was obtained.

Example of the Web Service Client Application Development Procedure

1. Generate the stub

Generate the stub that is used in JAX-WS from the WSDL that was obtained. Use the ijwsimport command. For details, refer to "ijwsimport" in the "Java EE Operation Commands" chapter.



Example

Example: Generating the stub by obtaining the WSDL from the URL that was notified

```
ijwsimport -keep http://ws.example.com/StockQuote/StockQuoteProviderService?wsdl
```

In case it is necessary to investigate trouble, it is strongly recommended that resources except for the final product (for example, source files) are also saved and stored in the -keep option.

2. Create the application

Create the application that follows JAX-WS and Web Services for Java EE using the stub type that was generated.



Example

Example: Using the stub type that was generated in the stock.server. package

```

public class StockQuoteClient {
    @javax.xml.ws.WebServiceRef
    static stock.server.StockQuoteProviderService service;

    public static void main(String[] args) throws Exception {
        stock.server.StockQuoteProvider port = service.getStockQuoteProviderPort();
        System.out.println(port.getLastTradePrice(args[0]));
    }
}

```

3. Compile the application

Compile the application. The following JAR file is required for the compile.

Windows32/64

C:\Interstage\F3FMisjee\lib\endorsed\webservices-api.jar

Solaris32/64 **Linux32/64**

/opt/FJSVisjee/lib/endorsed/webservices-api.jar

Specify the above JAR file in the -classpath option of the javac command.



Example

Example: When there is a source file and stub type root directory in the current directory

`javac -classpath C:\Interstage\F3FMisjee\lib\endorsed\webservices-api.jar;. StockQuoteClient.java`

4. Packaging

Package the Java EE application module (WAR, ejb-jar, or application client). Where necessary, also create a deployment descriptor for the Java EE application module and include it in the module.

For details on packaging to the application client, refer to "3.1.6 Creating the Client Application".



Example

Example) Packaging to the application client (the manifest file in which Main-Class has been defined is in the META-INF directory)

`jar cvfm stockclient.jar META-INF/MANIFEST.MF .`



Note

Notes about the class name

When deploying a web service application or web service client to IJServer cluster, make sure that the same class name is not contained in the Enterprise ARChive(EAR) file, regardless of the web class loader delegation model settings.

When the stub used in the web service client is generated using the ijwsimport command, the class name that is generated is normally the same as the call destination web service endpoint.

For this reason, if it is necessary to include the web service application and the web service client application that calls the web service application in a single Enterprise ARChive(EAR) file and then deploy them, make sure that the class name that is generated is not the same as the server class name. So that the class names are not the same, use one of the following methods to generate the class.

- Customize the package name by specifying the -p option in the ijwsimport command.
- Customize the package name or class name using the binding file specified in the -b option in the ijwsimport command.

For details on class name mapping, refer to JAX-WS and JAXB.

Note

Notes about application development

- Many processes are executed internally in the creation of object instances for the `javax.xml.ws.Service` object (in the above example, this is the `stock.server.StockQuoteProviderService` class). To improve application performance, it is recommended that the `javax.xml.ws.WebServiceRef` annotation injection, as shown in the above example, is used, instead of obtaining the `javax.xml.ws.Service` object per request. However, the simultaneous use of the `javax.xml.ws.Service` object on multiple threads is uncertified. For this reason, an exclusive lock must be applied in environments in which the object is used on multiple threads.
- A single stub object (in the above example, this is the `stock.server.StockQuoteProvider` class) cannot be used in multiple threads at the same time. As shown in the above example, the obtaining of objects from the `javax.xml.ws.Service` object and thread exclusion must be executed per request.
- Do not use the JAXB object or MESSAGE mode to create the `javax.xml.ws.Dispatch` instance. Use the PAYLOAD mode if the JAXB object is to be used. Use `javax.xml.transform.Source` or `javax.xml.soap.SOAPMessage` if the MESSAGE mode is to be used.

HTTP Request Property Settings

If necessary, HTTP settings such as changing the web service URL and Basic authentication user name and password can be specified as request context properties via the `javax.xml.ws.BindingProvider` object. For details on the properties that can be used, refer to the `javax.xml.ws.BindingProvider` Javadoc and JAX-WS specifications. In addition to the JAX-WS standard properties displayed in the `ENDPOINT_ADDRESS_PROPERTY`, `PASSWORD_PROPERTY`, `SESSION_MAINTAIN_PROPERTY`, `SOAPACTION_URI_PROPERTY`, `SOAPACTION_USE_PROPERTY`, `USERNAME_PROPERTY` field values of the same interface, the following can also be set:

Property name	Value that is specified
<code>com.sun.xml.ws.request.timeout</code>	In a <code>java.lang.Integer</code> type value of 0 or more, the HTTP communication read timeout is specified in milliseconds. If 0 is specified, the read timeout is not limited. This value is passed to the <code>java.net.HttpURLConnection#setReadTimeout</code> method.
<code>com.sun.xml.ws.connect.timeout</code>	In a <code>java.lang.Integer</code> type value of 0 or more, the connection timeout to the HTTP communication server is specified in milliseconds. If 0 is specified, the connection timeout is not limited. This value is passed to the <code>java.net.HttpURLConnection#setConnectTimeout</code> method.

Example

Example: Setting "myname" as the Basic authentication user name, "mypassword" as the password, 15 seconds as the connection timeout, and 1 minute as the read timeout.

```
stock.server.StockQuoteProvider port = service.getStockQuoteProviderPort();

java.util.Map<String, Object> requestContext = ((javax.xml.ws.BindingProvider)port).
getRequestContext();
requestContext.put(javax.xml.ws.BindingProvider.USERNAME_PROPERTY, "myname");
requestContext.put(javax.xml.ws.BindingProvider.PASSWORD_PROPERTY, "mypassword");
requestContext.put("com.sun.xml.ws.connect.timeout", 15 * 1000);
requestContext.put("com.sun.xml.ws.request.timeout", 60 * 1000);

System.out.println(port.getLastTradePrice(args[0]));
```



Note

If the SOAPAction header value has not been specified, do not specify the SOAP request context SOAPACTION_URI_PROPERTY. If SOAPACTION_URI_PROPERTY is specified, it is sent as the SOAPAction header, regardless of the SOAPACTION_USE_PROPERTY value.

Using a Proxy

To use a proxy, configure the required settings in the standard Java network system property (for example, http.proxyHost) in the environment that is used to run the web service client application.

3.1.4 Data Types that can be Used in Web Service Communication

This section explains the data types that are supported in web service communication. In Java EE web service applications, JAXB is used for the exchange of data between Java and XML. The data types that can be used are explained below. For details on data types that are not explained in this section and on conversion, refer to the JAX-WS and JAXB documentation.

- [Basic Java Data Types and XML Data Types](#)
- [Bean Types](#)
- [Array/collection Types](#)
- [Attachment File Types](#)
- [Use as an out/inout Parameter](#)
- [Other notes](#)



Note

If the format of the data included in the received message is invalid, then the corresponding Java values might be passed to the application as initial values for each data type that is stipulated in the Java Language Specification.

- In the Java reference type (*1), an initial value (null) might be received in the application if the data is invalid, not because the sender intended to send a 'null' value. For this reason, it is recommended that 'null' is handled as an abnormal value, and not as a normal value for the application and system design.
- *1) This means the class type, interface type, or array type. The java.lang package classes that wrap the Bean, array, collection, attachment, and primitive types explained in this section are applicable.
- Refer also to the specific notes in each section below.



Information

The namespaces for the XML data type prefixes that are used in the explanation in this section are as follows. When an application or command is executed, prefixes not shown below may be used for the namespaces explained in this section.

Prefix	Namespace
Xs	http://www.w3.org/2001/XMLSchema
Xsi	http://www.w3.org/2001/XMLSchema-instance
Wsi	http://ws-i.org/profiles/basic/1.1/xsd

Basic Java Data Types and XML Data Types

The basic data types that can be used in the web service application parameters (arguments, return value), and the corresponding types that are used in XML are shown below.

Java data type	Data type that is used in XML
Int	xs:int
Short	xs:short
Long	xs:long
Byte	xs:byte
Float	xs:float
Double	xs:double
Boolean	xs:boolean
java.lang.Integer	xs:int
java.lang.Short	xs:short
java.lang.Long	xs:long
java.lang.Byte	xs:byte
java.lang.Float	xs:float
java.lang.Double	xs:double
java.lang.Boolean	xs:boolean
java.lang.String	xs:string
java.math.BigDecimal	xs:decimal
java.math.BigInteger	xs:integer
java.util.Calendar	xs:dateTime
Javax.xml.namespace.Qname	xs:QName
java.net.URI	xs:string
byte[]	xs:base64Binary

Note

Notes about basic data types

- To customize mapping to xs:hexBinary for byte[] using the JAXB @javax.xml.bind.annotation.XmlSchemaType annotation, use the @javax.xml.bind.annotation.XmlTypeAdapter annotation at the same time and specify the javax.xml.bind.annotation.adapters.HexBinaryAdapter class object in the parameter.
- According to the Java Language Specification mentioned at the beginning of this section, in the Java primitive types (int, short, long, byte, float, double, boolean), if the initial value for each data type (such as 0, 0.0 or false) is received in the application, then the error might have occurred because of an invalid data format in the received message, not because the sender intended to send that value.
For this reason, for Java primitive types it is recommended that values with their original settings and the initial values for each data type are not used as normal values for the application and system design. An alternative recommendation is that Java primitive types are not used at all. Instead, use the java.lang package class (Integer, Short, Long, Byte, Float, Double, Boolean) that wraps the primitive type so that 'null' is handled as an abnormal value.
- In java.lang.String, use only characters defined as valid in the XML specification (Char production rule). Control characters except horizontal tab and line feed cannot be used.
- In java.lang.String, there is no difference between null characters ("") and 'null' regarding the value passed to the application. For this reason, it is recommended that neither null strings nor 'null' are used as normal values for the application and system design.

Bean Types

The user definition Java class (Bean type) can be used in web service communication. By using a supported data type in the Bean type public field or property, data of a more complex structure can be used in web service communication.

The Bean type is defined as a public class that satisfies the following conditions:

- It has the public default constructor
- It uses a data type that is supported as one of the following data types:
 - public field
 - setter/getter property



See

For details on the properties, refer to the JavaBeans documentation.

The Bean type is expressed as `xs:complexType` for the content of `xs:sequence` in the WSDL definition. Additionally, the Bean type public field and property are both expressed as the `xs:sequence` child element `xs:element`.



Example

Example: Defining the Bean type

```
package com.example;    // Package name
public class PersonBean {
    // public field "age" declaration
    public int age;

    // Property "name" declaration
    private String name;
    public void setName(String name) { this.name = name; } //Property setter
    public String getName() { return this.name; } //Property getter
}
```

An example of the XML data type WSDL definition for the above Java is shown below.

```
<xs:complexType name="PersonBean">
  <xs:sequence>
    <xs:element name="age" type="xs:int"/>
    <xs:element name="name" type="xs:string"/>
  </xs:sequence>
</xs:complexType>
```

To customize the definition using annotation, make the declaration as follows. For the property, declare the annotation in the getter method.



Example

Example: Defining the Bean type that uses the annotation

```
package com.example;    // Package name
import javax.xml.bind.annotation.XmlType;
import javax.xml.bind.annotation.XmlElement;
@XmlType(name="Person") //Specify the annotation XML data data type name
public class PersonBean {
    // public field "age" declaration
    @XmlElement(name="personAge") //Specify the annotation XML element name
    public int age;
```

```

// Property "name" declaration
private String name;
public void setName(String name) { this.name = name; } //Property setter

@XmlElement(name="personName") //Specify the annotation XML element name
public String getName() { return this.name; } //Property getter
}

```

An example of the XML data type WSDL definition for the above Java is shown below.

```

<xs:complexType name="Person">
  <xs:sequence>
    <xs:element name="personAge" type="xs:int"/>
    <xs:element name="personName" type="xs:string"/>
  </xs:sequence>
</xs:complexType>

```

Note

Notes about Bean types

- When using the Bean type, define the name so that the property name and public field name in the class are not the same, regardless of whether upper or lower case is used.
- If true is specified for the `@javax.xml.bind.annotation.XmlElement` annotation nillable parameter in the Bean type public field or property, do not specify the `targetNamespace` parameter at the same time.
- When assigning the annotation to the Bean type property, only assign it to getter. Do not assign it to setter or the private field that is encapsulated by the property.

Array/collection Types

To express a parameter that has multiple values, supported data types can be used to send/receive messages in the web service using a collection class that implements an array or the `java.util.Collection` interface. To use the collection class, the type parameter can be declared as `java.util.List<String>` to make the data type collection content explicit.

Example

Example: XML data type WSDL definition for `String[]` and `java.util.List<String>`

```
<xs:element name="array" type="xs:string" nillable="true" minOccurs="0" maxOccurs="unbounded" />
```

Note

Notes about array/collection types

- Sending as null
 - If an array or List parameter on the application is sent as null, it may be obtained as an array or List with the element number 0 by the receiver.
- Sending as an array or List parameter with the element number 0
 - If an array or List parameter on the application is sent as the element number 0, it may be obtained as null by the receiver.

- If the collection class type parameter is not specified, the corresponding XML data type will be `xs:anyType`, and the data type that is used for communication will be determined by the object at the time of execution. If a Java data type that is not supported is used at the time of execution, it may not be possible to execute communication normally.
- To use an array type in the Bean type public field or property, `@javax.xml.bind.annotation.XmlElement (nillable=true)` must be specified.
- When using an array type in a web service endpoint argument or return value, do not specify the `@javax.jws.WebParam` annotation `targetNamespace` parameter.
- When an array type is defined as the type that indicates a numerical value such as `java.lang.Integer`, null cannot be used in the element.
- Do not specify an array or collection type in the collection type type parameter.
- In the Java array, if the format of the data in the received message is invalid, then the corresponding element might be excluded so that an abbreviated array is passed to the application. Normally, use of the collection type is recommended, instead of the array.
- In a web service in which BARE was specified for the `parameterStyle` attribute in `rpc/literal` or `document/literal` format, the collection type (`java.util.Collection` or its subclass) cannot be used for web service communication. If it was used, either change it to a data type other than collection type, or change the web service to `document/literal` format (the default format) and change the `parameterStyle` attribute to `WRAPPED` (the default attribute).

Attachment File Types

In addition to data types that handle values such as the primitive type or `String`, binary data such as files can be used in the web service. In this case, large-sized binary data processing can be executed efficiently by using the binary data as a file that is attached to the SOAP message, instead of converting the binary data to XML and including it in the message body.

The `javax.activation.DataHandler` class is used for the use of attachment files in the web service application. This can be declared in the web service application parameter (argument, return value), Bean type field, or property in the same way as normal data types.

When an attachment file is used in the web service application, the following two methods can be used. Either method uses the MIME multi part structure in order to convert the binary data to the file that is attached to the SOAP message, but the MIME part encoding methods are different.

- MTOM
- WS-I Attachments Profile

Method that is Used to Create the Application when the MTOM Method is Used

The following are executed in the web service application:

- Declare the `@javax.xml.ws.soap.MTOM` annotation in the web service application class to enable MTOM.
- In the MTOM `DataHandler` class parameter or property declaration to be sent using MTOM, declare the `@javax.xml.bind.annotation.XmlMimeType` annotation, and specify the MIME type in the annotation argument. If this does not need to be limited to a specific MIME type, specify `"*/*"`.

The following are executed in the web service client:

- When the stub object is obtained from the service object, the `javax.xml.ws.soap.MTOMFeature` object is passed.



Example

Example: Creating a web service application that uses attachment files in the MTOM method

```
@MTOM
@WebService
public class Hello {
    @WebMethod
    public void upload(String saveFileName,
        @XmlMimeType("*/*") DataHandler data) {
        :
    }
}
```

```
}  
}
```

Example

Example: Creating a web service client that uses attachment files in the MTOM method

```
DataHandler dataHandler =  
    new DataHandler(new javax.activation.FileDataSource("./myFile.doc"));  
Hello port = new HelloService.getHelloPort(new MTOMFeature());  
port.upload("myFile.doc", dataHandler);
```

Method that is Used to Create the Application when the WS-I Attachments Profile Method is Used

The following are executed in the web service application:

- Declare the `@javax.xml.bind.annotation.XmlAttachmentRef` annotation in the `DataHandler` class declaration.

There is no particular processing or declarations that are required in the web service client. Use the `DataHandler` object in the same way as the normal parameter or property.

Example

Example: Creating a web service application that uses attachment files in the WS-I Attachments method

```
@WebService  
public class Hello {  
    @WebMethod  
    public void upload(String saveFileName,  
                      @XmlAttachmentRef DataHandler data) {  
        :  
    }  
}
```

Example

Example: Creating a web service client that uses attachment files in the WS-I Attachments method

```
DataHandler dataHandler =  
    new DataHandler(new javax.activation.FileDataSource("./myFile.doc"));  
Hello port = new HelloService.getHelloPort();  
port.upload("myFile.doc", dataHandler);
```

Sending Large-sized Attachment Files from the Web Service Client

When attachment files are sent from the web service client, by default internal buffer processing for the attachment data is executed and then send processing is executed. This method can be executed for efficient transfer processing of small amounts of communication data, but the buffer size in the memory must be sufficient.

To send a large-sized attachment file that exceeds the number of megabytes from the web service client, configure the settings so that attachment files in the client application are sent in streaming mode, as shown below.

- Cast the stub object that was obtained in the `javax.xml.ws.BindingProvider` class.
- Call the `getRequestContext` method of the stub object that was cast, and then set the following value in the `put` method for the `Map` object that was returned.

Key	Value
"com.sun.xml.ws.transport.http.client.streaming.chunk.size"	java.lang.Integer object for which the value is 0

Example

Example: Creating a web service client in which the attachment files are sent in streaming mode (MTOM method)

```

DataHandler dataHandler =
    new DataHandler(new javax.activation.FileDataSource("./myFile.doc"));
Hello port = new HelloService.getHelloPort(new MTOMFeature());
BindingProvider provider = (BindingProvider) port;
provider.getRequestContext().put(
    "com.sun.xml.ws.transport.http.client.streaming.chunk.size",
    new Integer(0));
port.upload("myFile.doc", dataHandler);

```

Note

Notes about attachment files

- When an MTOM method attachment file is used in this version, the correct information is not displayed when the following Java EE Management Console tabs are clicked: [Web Services] > [Web Service Name] > [Monitor] > [Messages].
- MTOM and WS-I Attachments Profile are incompatible. Configure the settings so that these two methods do not exist in a single web service application.
- In IJServer cluster, JAXB attachment file types except for javax.activation.DataHandler are also supported, however when binary data is converted to a Java object in a non-DataHandler class the original binary data may not be retained correctly for the class specs related reasons. Use of these classes in this product is not recommended.
- The InputStream that can be obtained from the received attachment file DataHandler object may continuously return 0 for the available() method if data can be retrieved with no block.
- Do not assign an @XmlMimeType or @XmlAttachmentRef annotation directly to an array or collection of 2 or more dimensions. Instead, create a Bean class that has the public field or property to which the above annotation has been assigned, and send/receive the class that was created using any array or collection of the dimension number.
- When setting the streaming mode, do not specify any value except 0 for the Integer value that is set in the Map object.
- A file that is attached as the web service application exception object content cannot be sent in MTOM/ WS-I Attachments Profile format. In this case, binary data that is contained in objects such as javax.activation.DataHandler is included in the SOAP envelope as xs:base64Binary type data and sent.
- In rpc/literal formats, or document/literal formats in which BARE was specified for the parameterStyle attribute, send/receive the attachment as a Bean type member without declaring a class such as DataHandler in the service endpoint method argument or return value directly. If the class is directly declared in the service endpoint method argument or return value, then binary data in the object is included in the SOAP envelope as xsd:base64Binary type data and sent.
- When an attachment file of 1M bytes or more is received, a temporary file is created internally to save memory. The temporary file is generated in the directory in which the java.io.tmpdir system property has been set according to the following naming rules:
 - MIME*****.tmp

The ***** part is any numerical value.

In the location in which the temporary file is created, secure sufficient disk space for the traffic density and attachment file upper limit values.

Normally, the temporary file is deleted when the attachment file data object is collected by GC or when the Java VM is closed, however it may remain if the Java process ends abnormally. In this case, check that the above file is not being used by a process and then delete it manually.

Additionally, to execute an application after changing the default java.io.tmpdir value, check that there are write permissions for IISServer cluster which executes the web service and for the web service client execution user.

- If an attachment is used when the web service application method is WS-I Attachments, the WSDL file that is made public after the deployment may contain references to external Internet pages.

Use as an out/inout Parameter

To use a supported data type as the out or inout parameter, declare the argument in the web service application method using the javax.xml.ws.Holder class.

Point

Point: out/inout parameters

- The out parameter is an argument for a value that is returned from the server although the value was not sent from the client.
- The inout parameter is an argument for a value that is returned from the server and sent from the client.

In the web server application and the web server client, the Holder class is used as the Java argument for the out/inout parameters.

Method that is Used to Declare the Holder Class Variable

```
Holder<Supported data type class name> Variable name
```

To declare the Holder class in the web service application method argument, specify a supported data type class name as the type parameter. The class that was specified in the type parameter is used as the 'value' field type in the public field of the Holder object.

INOUT or OUT can be specified in the Holder class argument using the @javax.jws.WebParam annotation mode member. If this is not specified, the argument that was declared in the Holder class is used as the INOUT parameter.

Specify the type parameter to declare or generate the Holder object that is passed to the stub object method as an argument in the web service client application as well.

Method to Use the Holder Class Variable

In the web service application, by setting a value in the value field of the Holder object that was received in the argument, that value is returned to the web service client as the out parameter.

In the web service client after returning from the web service call, the value that was returned by the web service application as the out parameter is set in the value field of the Holder object that was used in the argument.

Example

Example: Using the Holder class (web service application method)

```
@WebMethod
public int serverMethod(int inParam,
    @WebParam(mode=WebParam.Mode.INOUT) Holder<Integer> inoutParam,
    @WebParam(mode=WebParam.Mode.OUT) Holder<String> outParam) {

    //The inout parameter references the input value and executes required processing
    int number = inoutParam.value.intValue();
    :
    //Assign the value that is sent to the client in the out/inout parameter value field
    inoutParam.value = new Integer(10);
    outParam.value = "abc";

    return 0;
}
```

Example

Example: Using the Holder class (web service client)

```
//Parameter preparation
int inParam = 123;
Holder<Integer> inoutParam = new Holder<Integer>();
inoutParam.value = new Integer(987);
Holder<String> outParam = new Holder<String>();

//Web service call (When the server is as in the above example, the result is 0)
int result = portStub.serverMethod(inParam, inoutParam, outParam);

//Using the out/inout parameter value that was returned
int inoutResult = inoutParam.value.intValue(); //(When the server is as in the above example, the
result is 10)
String outResult = outParam.value;        //(When the server is as is in the above example, the result
is "abc")
:
```

Note

Notes about using the out/inout parameter

- When a class that represents a numerical value such as `java.lang.Integer` is defined as the Holder class value field data type, null cannot be used in the value field.

Other notes

Note

- As a guide, if the communication data size exceeds several 100Kbytes (including data in XML tags), investigate using the "[Attachment File Types](#)" from the perspective of performance and memory consumption. Additionally, if the total data amount for attachment files that are sent at the same time in the process overall exceeds 10Mbytes, set the streaming mode before sending the files.
- If the size of the communication data except for the "[Attachment File Types](#)" part is large, large amounts of memory may be used up or there may be insufficient memory or the processing time may be exceeded when the files are received.
- Even when the size of the communication data is the same, however, the memory consumption will differ greatly depending on the content format, and the simultaneous processing currency and performance requirements will also differ depending on the system. Although the above size can be used as a guide, it is still recommended that you verify the requirements using the data content format for the actual service according to the conditions.
- If null was set for a nillable="false" element in the XML schema, the data recipient may encounter unexpected trouble such as an object with an initial value, or null may be restored to a value. Do not set null for this type of element.
- If a derived XML data type is used, then `xs:anySimpleType` cannot be specified for the `xs:restriction` 'base' attribute.
- If the XML data type is `xs:anySimpleType`, then the web service application parameter Java data type will be `java.lang.Object`. In the sender, the communication data `xsi:type` is determined automatically from the object that was passed to the `java.lang.Object` type parameter. The receiver should check the Java data type for the `java.lang.Object` type parameter instance, and then cast appropriately. If `xsi:type` is not set for the communication data in the sender, then the Java data type for the `java.lang.Object` type parameter in the receiver may be `org.w3c.dom.Node`.

3.1.5 WSDL Descriptions that are Used in the Web Service/Web Service Client

WSDL items that must follow non-WSDL specifications when WSDL is used in Interstage Java EE are explained below.

Information

The XML namespace prefixes that are used in this section are as follows:

Prefix	Namespace
WsdL	http://schemas.xmlsoap.org/wsdl/
Xs	http://www.w3.org/2001/XMLSchema
Xmime	http://www.w3.org/2005/05/xmlmime

Type Definitions

- Only XML schema can be used in the wsdl:types type definition. For details on each data type, refer to "[Basic Java Data Types and XML Data Types](#)".
- Be aware of schema definitions for which the XML instance interpretation is indefinite (for example, a sequence model for which the number of appearances is not fixed, and there are repeated multiple element definitions for the same name). Interpretation of that type of definition data in the actual communication will be indefinite when the data is received.
- Make sure that multiple any definitions are not included in one complexType definition.
- To use the xs:choice definition, specify "unbounded" in the maxOccurs attribute. If maxOccurs="unbounded" is not specified, mapping is not executed correctly.

Example

Example: Defining xs:choice

A Java example for the WSDL definition when the stub was generated from the WSDL definition is shown below.

```
<xs:complexType name="addNumbers">
  <xs:sequence>
    <element name="in_param" type="xs:int" />
    <element name="inout_param" type="xs:int" />
    <xs:choice maxOccurs="unbounded">
      <xs:element ref="tns:selected_param_int" />
      <xs:element ref="tns:selected_param_string" />
    </xs:choice>
  </xs:sequence>
  <element name="selected_param_int" type="xs:int" />
  <element name="selected_param_string" type="xs:string" />
</xs:complexType>
```

```
public class AddNumbers {
  @XmlElement(name = "in_param")
  protected int inParam;
  @XmlElement(name = "inout_param")
  protected int inoutParam;
  @XmlElements({
    @XmlElement(name = "selected_param_int", type = Integer.class),
    @XmlElement(name = "selected_param_string", type = String.class)
  })
}
```

```
protected List<JAXBElement<String>> selectedParamIntOrSelectedParamString;  
}
```

- The xs:any element cannot be used.
- Do not specify "text/plain" in the xmime:expectedContentTypes attribute value.

Other

- Namespace prefixes that start with "xml" cannot be used.
- For elements of different data types, specify a different name attribute.
- For the characters that comprise URI, only use characters that can be used within the ASCII code range.

Windows32/64

- If one of the following uses a WSDL that matches the DOS device name, by default an error may occur when Java is generated from WSDL. This can be avoided by using the JAX-WS or JAXB custom binding definition and specifying the class name or package name that is generated. For details, refer to the JAX-WS and JAXB documentation.
 - Type name
 - Port type name
 - Operation name
 - Service name
 - Namespace component elements (character string names that are separated by '!', '/', or ';')

3.1.6 Creating the Client Application

Creating the Main Class

The Java EE application client requires a main class. This class must contain a static main method. The main method is the method that is executed first on the Java EE application client.



Example

In the following example, the main class is the MyClass class.

```
public class MyClass {  
    public static void main(String[] args) {  
        ...  
    }  
}
```

The application client container searches the Java EE application client main class from the manifest file of the client JAR file at startup. By defining the Main-Class attribute in the manifest file, a class can be specified as the main class. If the main class is not specified in the manifest file, the main class specified in the -mainclass option of the appclient command is searched. In the following example, the main class is defined in the manifest file.



Example

The main class is defined in the manifest file

Main-Class: com.mycompany.client.MyClass

Using Dependency Injection

In the Java EE application client main class, the required entry declarations can be executed using Java annotations. The annotation is processed during the start process of the application client container, therefore it is not processed in a Java SE stand-alone client.

If the main class is defined in the manifest file of the client JAR file that is deployed, Dependency Injection is performed on the annotations defined in the main class automatically. If the main class is not defined in the manifest file, the class name and field name that are used to perform Dependency Injection must be specified in the <injection-target> tag of the deployment descriptor file (application-client.xml).

The application client container calls the static main method without instantiating the main class, therefore methods and fields with annotations must be declared as static. For details on the annotations that can be used, refer to the Java EE specification.



Example

In the following example, the method that is used to obtain the Enterprise JavaBean that has a remote interface called MyRemote using the @EJB annotation is shown.

```
import javax.ejb.*;

public class MyClass {
    @EJB static MyRemote remote;
    public static void main(String[] args) {
        ...
    }
}
```

3.1.7 How to Use JNDI

When the various resources and Enterprise JavaBeans are accessed, the JNDI API or annotation is used. When the JNDI lookup method is used, either of the following can be specified as the argument:

Value specified for the lookup argument	Explanation
java:comp/env/reference name	When an environment naming context is used
JNDI name	When the naming service is accessed directly

The reference name (logical name) defined in the deployment descriptor file can be defined in the Interstage deployment descriptor file to correspond to the JNDI name (physical name). In Java EE components for which this correspondence has been defined, by specifying the reference name and then executing the lookup method the JNDI name object that corresponds to that reference name can be looked up.

Rather than specifying the JNDI name to perform lookup directly, by defining this reference name and using the environment naming context to perform lookup, correspondence can be achieved simply by editing the Interstage deployment descriptor when the resource name or environment is changed. For this reason, there is no need to recompile the application, so the application will be generic.

For details on how to edit definitions when the environment naming context is used, refer to "Environment Naming Context" in the "Functionality Provided in the Java EE Application" chapter.

3.1.8 Creating Applications that Connect to the Database

To execute database processing, the JDBC resources that are defined in the Interstage Java EE Admin Console must be obtained using a JNDI method (such as lookup) and then processing requests to the database executed as shown in the example below.

The database processing request is executed using the JDBC API. For details on the JDBC API, refer to the JDBC API rules.



Example

```
InitialContext ctx = new InitialContext();
javax.sql.DataSource ds = ctx.lookup("jdbc/MyBase");
Connection con = ds.getConnection();
```

```
// execute the database process
con.close();
```

Only the JDBC standard API is supported. JDBC driver-specific methods (OracleConnection-specific methods) cannot be used. When the object that executes the specific method is passed to the JDBC driver-specific class, the java.lang.ClassCastException is thrown.

Shared Connections

When a connection is used for the same JDBC resources, the connection is shared within the same transaction range. For example, when a connection for a transaction and for the JDBC resources is obtained in application A, application B obtains the connection using the same authentication information (user ID/password) for the same JDBC resources within the same transaction range, therefore the connection is shared until application A completes its transaction.

The connection obtained from the JDBC resource is only shared when the Java EE component allows shared connections. When Shareable is defined in the res-sharing-scope element of the resource reference items, the connection is shared. Alternatively, when Unshareable is specified, the connection is not shared.

Non-transaction Connections

The method that is used to specify access to the database without performing transaction management is explained below. In general, when the getConnection method is executed, the connection participates in the transaction context. Participation and separation for the connection are not performed when the connection is made to a transaction that is not managed, thereby reducing performance overheads.

However, caution is required when using a connection that does not perform transaction management. For example, if the database is accessed using a connection for which transactions are not managed, and the data is referenced while it is being changed by other business processes, the pre-change data is referenced. This is because the transaction in process is not committed. As another example, if the connection for which transactions are not managed changes the database, and transactions executed at the same time by other processes are rolled back, the changes that occurred as a result of the connection for which transactions are not managed are not rolled back.

To maintain consistency in serial processing of the database, transactions must be managed as follows.

- Select the JDBC connection pool non-transaction connection item in the Interstage Java EE Admin Console. By default, this is not checked.
- Enable the nontransactionalconnections option using the asadmin command create-jdbc-connection-pool subcommand. After this is created, it can also be updated using the set subcommand.
- Specify "__nontx" at the end of the JNDI name that creates the JDBC resource. Transactions for the connection obtained by this JDBC resource are not managed by force.

Note

Notes about using a non-transaction connection, or accessing the database without starting the JTA transaction, are as follows:

- autocommit mode for the connection runs as enabled.
- If autocommit mode for the connection is disabled, then execute commit or rollback before closing the connection, otherwise abnormal behavior might occur (such as the database operation not being reflected or being reflected with unexpected timing).

Transaction Block and Block Level

Databases support transaction block levels so that the block level of a transaction can be locked. Not all databases support all transaction block levels. For details on the support status for each database transaction block level, refer to the manual of each database.

Transaction block level	Explanation		
	Dirty read	Non-repeatable read	Phantom Insert
TRANSACTION_READ_UNCOMMITTED	Occurs	Occurs	Occurs
TRANSACTION_READ_COMMITTED	Restricted	Occurs	Occurs

Transaction block level	Explanation		
	Dirty read	Non-repeatable read	Phantom Insert
TRANSACTION_REPEATABLE_READ	Restricted	Restricted	Occurs
TRANSACTION_SERIALIZABLE	Restricted	Restricted	Restricted

Dirty read

The pre-cancellation data is read regardless of whether or not changes to data were cancelled by another transaction.

Non-repeatable read

When the same data is read twice in a transaction, and another transaction changes the data during the first and second read, causing the data for the first and second reads to be different in the same transaction.

Phantom Insert

When a record is read, using a condition such as WHERE, in a transaction, and another transaction inserts a record that satisfies the condition, causing the first transaction to see the inserted record.

Transaction Block

This section explains the method that is used to set the transaction block level in the connection pool. If this is not specified, the default transaction block level set by the JDBC driver is applied in the connection. This can be set according to the following procedure.

- Select the JDBC connection pool transaction block item in the Interstage Java EE Admin Console.
- Specify the transaction block level for the isolationlevel option using the asadmin command create-jdbc-connection-pool subcommand. After this is created, it can also be updated using the set subcommand.

Block Level

All connections obtained from the connection pool have the same block level. This only applies when the above transaction block is specified. For example, when the setTransactionIsolation() method of the connection that was last used is called and the transaction level is changed in the client explicitly, and a connection that was returned to the pool is re-obtained, it is returned to the specified transaction block level according to this mechanism. This can be set using the following procedure.

- Select the JDBC connection pool block level item in the Interstage Java EE Admin Console.
- Enable the isisolationguaranteed option using the asadmin command create-jdbc-connection-pool subcommand. After this is created, it can also be updated using the set subcommand.

Only Join Connection after the Transaction has Started

If this functionality is enabled in the JDBC resource, only connections opened after the start of the JTA transaction can participate. If this functionality is disabled in the JDBC resource, connections opened outside the JTA transaction range participates in the transaction when the JTA transaction is started (they become JTA transaction targets).

When this functionality is used, however, processing is cumbersome. For this reason, it is recommended that a non-transaction connection is used if the connection is not going to participate in the JTA transaction.

The "Only join connection after the transaction has started" connection can be obtained using the following procedure:

- Select the checkbox for this item in the Interstage Java EE Admin Console. By default, this is not checked.
- Enable the allownoncomponentcallers option using the asadmin command create-jdbc-connection-pool subcommand. After this is created, it can also be updated using the set subcommand.
- Reference the JNDI name that has "__pm" added to the end of it, which is registered in the naming service automatically when the JDBC resource is created.

3.1.9 Creating the Lifecycle Module

This section explains the method that is used to create the lifecycle module application.

- [Creating the Lifecycle Module](#)
- [Obtaining the Property](#)
- [Obtaining javax.naming.InitialContext](#)
- [Notes on Implementation](#)
- [Application Interface Details](#)

Creating the Lifecycle Module

Lifecycle modules, initiated at server startup and notified at different stages of the lifecycle of the application server, can be used to run Java-based tasks within the server environment. The lifecycle module is created by implementing the following method of the `com.sun.appserv.server.LifecycleListener` interface.

```
public void handleEvent(com.sun.appserv.server.LifecycleEvent event)
throws ServerLifecycleException
```

A process is implemented for each lifecycle event notified in the `handleEvent` method. When the process fails, a `com.sun.appserv.server.ServerLifecycleException` is thrown. (*1)

*1) If `com.sun.appserv.server.ServerLifecycleException` is thrown, the J2SE cluster outputs a stack trace to the server log and continues start or stop processing.

To obtain the notified lifecycle event, the following `com.sun.appserv.server.LifecycleEvent` method is used.

- `public int getEventType ()`

In the `LifecycleEvent` class, the following fixed values (int) that indicate each server lifecycle event are defined.

- `INIT_EVENT`
- `STARTUP_EVENT`
- `READY_EVENT`
- `SHUTDOWN_EVENT`
- `TERMINATION_EVENT`



Example

A sample implementation of the `LifecycleListener` interface is shown below.

```
import com.sun.appserv.server.LifecycleEvent;
import com.sun.appserv.server.LifecycleListener;
import com.sun.appserv.server.ServerLifecycleException;

public class LifecycleSimpleImpl implements LifecycleListener {
    public void handleEvent(LifecycleEvent event) throws ServerLifecycleException {
        if (LifecycleEvent.INIT_EVENT == event.getEventType()) {
            System.out.println("INIT_EVENT");
            return;
        }

        if (LifecycleEvent.STARTUP_EVENT == event.getEventType()) {
            System.out.println("STARTUP_EVENT");
            return;
        }
    }
}
```

```

    if (LifecycleEvent.READY_EVENT == event.getEventType()) {
        System.out.println("READY_EVENT");
        return;
    }

    if (LifecycleEvent.SHUTDOWN_EVENT == event.getEventType()) {
        System.out.println("SHUTDOWN_EVENT");
        return;
    }

    if (LifecycleEvent.TERMINATION_EVENT == event.getEventType()) {
        System.out.println("TERMINATION_EVENT");
        return;
    }
}
}

```

Obtaining the Property

The property added in the lifecycle module settings is obtained by the following `com.sun.appserv.server.LifecycleEvent` class method.

- `public java.lang.Object getData()`



Example

Example: Lifecycle listener implementation sample in which the property (the property name is registered as "arg1") is obtained and output using standard output

```

import com.sun.appserv.server.LifecycleEvent;
import com.sun.appserv.server.LifecycleListener;
import com.sun.appserv.server.ServerLifecycleException;
import java.util.*;

public class LifecycleListenerImpl implements LifecycleListener {
    Properties prop = null;

    public void handleEvent(LifecycleEvent event) throws ServerLifecycleException {
        if (LifecycleEvent.INIT_EVENT == event.getEventType()) {
            prop = (Properties)event.getData();
            System.out.println("arg1="+prop.getProperty("arg1"));
            return;
        }
    }
}
}

```

Obtaining javax.naming.InitialContext

The `InitialContext` instance is obtained by the following `com.sun.appserv.server.LifecycleEventContext` method.

- `public javax.naming.InitialContext getInitialContext()`

The `LifecycleEventContext` instance is obtained by the following `com.sun.appserv.server.LifecycleEvent` class method.

- `public com.sun.appserv.server.LifecycleEventContext getLifecycleEventContext()`



Example

Example 1: Lifecycle listener implementation sample in which InitialContext is obtained and javax.sql.DataSource is looked up

```

import com.sun.appserv.server.LifecycleEvent;
import com.sun.appserv.server.LifecycleListener;
import com.sun.appserv.server.ServerLifecycleException;
import javax.naming.InitialContext;
import javax.naming.NamingException;
import javax.sql.DataSource;

public class LifecycleListenerImpl implements LifecycleListener {
    public void handleEvent(LifecycleEvent event) throws ServerLifecycleException {
        if (LifecycleEvent.READY_EVENT == event.getEventType()) {
            InitialContext ic = event.getLifecycleEventContext().getInitialContext();
            try {
                DataSource ds = (DataSource) ic.lookup("jdbc/db");
            } catch (NamingException ne) {}
            return;
        }
    }
}

```

Example

Example 2: Lifecycle listener implementation sample in which InitialContext is obtained and the EJB business interface (examples.session.stateless.Hello) is looked up

```

import com.sun.appserv.server.LifecycleEvent;
import com.sun.appserv.server.LifecycleListener;
import com.sun.appserv.server.ServerLifecycleException;
import javax.naming.InitialContext;
import javax.naming.NamingException;

public class LifecycleListenerImpl implements LifecycleListener {
    public void handleEvent(LifecycleEvent event) throws ServerLifecycleException {
        if (LifecycleEvent.READY_EVENT == event.getEventType()) {
            InitialContext ic = event.getLifecycleEventContext().getInitialContext();
            try {
                Object ds = (Object) ic.lookup("examples.session.stateless.Hello");
            } catch (NamingException ne) {}
            return;
        }
    }
}

```

Note

If an EJB application that runs on another server instance is called from the lifecycle module using IIOP communication, use the feature for linking to another naming service to specify the connection destination server instance.

Notes on Implementation

- The lifecycle module is executed synchronously by the main server thread. For this reason, these classes must not block the IJServer cluster start/stop. If the IJServer cluster start is blocked in lifecycle module processing, the IJServer cluster will fail to start after the IJServer cluster wait time has elapsed.
- The following API return information may change in future versions. Processes that depend on this returned information should not be implemented.
 - public java.String[] getCmdLineArgs()

- public java.lang.String getInstallRoot()
- public java.lang.String getInstanceName()

Application Interface Details

All interfaces are stored in the following files:

Windows32/64

C:\Interstage\F3FMisjee\lib\appserv-rt.jar

Solaris32/64 **Linux32/64**

/opt/FJSVisjee/lib/appserv-rt.jar

For details on each interface, refer to the Javadoc published by Oracle.

3.1.10 How to Create J2EE/Java EE Linked Applications

This section explains how to create applications that use J2EE/Java EE linkage.

How to Create Applications that Run on Java EE Runtime Environment IJServer Clusters

For EJB applications that are targets of calls from the J2EE runtime environment IJServer, implement the Home or Remote interface as in EJB 2.1 or earlier.



Note

The J2EE runtime environment IJServer only supports the function range in the J2EE 1.4 specifications. For this reason, note the following points:

- Do not use classes that were added in Java EE 5 in method return values. If the return value is a class that stores objects such as Hashtable and JavaBean, do not store the objects of classes that were added in Java EE 5 inside returned objects.
- Do not use 'throw' for exceptions that were added in Java EE 5.

How to Create Applications that Run on Java EE Runtime Environment IJServer Clusters

How to use JNDI that is provided in Interstage Java EE

Before calling an EJB application that runs on a Java EE runtime environment IJServer cluster from an application that has been deployed to a J2EE runtime environment IJServer, lookup of the EJB application must be performed using the JNDI function that is provided in Interstage Java EE.

To use the JNDI function that is provided in Interstage Java EE, set the following environment property information for the argument when the InitialContext constructor is called.

Environment property	Value
java.naming.factory.initial	com.sun.enterprise.naming.SerialInitContextFactory

How to Specify the Java EE Runtime Environment IJServer Cluster of the Connection Destination

To specify this in the connection destination, use the method described in "RMI-IIOP Load Balancing and Failover Algorithms" - "Stand-alone client settings".



Note

The connection destination host name and port number must be specified, otherwise there may be a connection to an unintended server and follow-on processing may fail.

Example

An example of the implementation is shown below. For the JNDI lookup method, specify a JNDI name for an EJB application that actually exists.

```
// Environment properties settings
java.util.Hashtable env = new java.util.Hashtable();
env.put("java.naming.factory.initial",
        "com.sun.enterprise.naming.SerialInitContextFactory");

javax.naming.InitialContext context = new javax.naming.InitialContext(env);
Object object = context.lookup(JNDI name);
```



InitialContext that was obtained according to the above method should only be used to call applications on Java EE runtime environment IJServer clusters. It cannot be used to call J2EE runtime environment EJB applications or resources.

3.1.11 Environment Settings for Access to Shared Network Resources

Windows32/64

Follow the procedure below to configure the settings to reference or update shared network resources from an application that has been deployed to the IJServer cluster.

Configuration of the Machine that Runs the IJServer Cluster that Accesses the Shared Resources (Machine A)

Change the user account of the user that starts the Interstage Java EE service.

The service in which to configure the settings depends on the application deployment target.

- When the application is deployed to the Interstage Java EE DAS service instance (server)

The settings must be configured on the Interstage Java EE DAS Service.

- When the application is deployed to the IJServer cluster

The settings must be configured on the Interstage Java EE Node Agent Service.

The explanation in the following configuration procedure is for both services.

1. Stop the services in the following order:

1. Stop the Interstage service using the isstop command.
2. Stop the Interstage Java EE DAS service using the ijdasstop command.

2. Create a Windows user with Administrator privileges.

3. Specify the user that was created in step 2 above in the Interstage Java EE DAS Service and Interstage Java EE Node Agent Service logon accounts.

The configuration procedure for the logon account is as follows:

1. Log on to Windows(R) using an Administrator account.
2. Start [Control Panel] > [Administrative Tools] > [Services].
3. Right-click the relevant service, and then click [Properties].
 - For the Interstage Java EE DAS Service, right-click "Interstage Java EE DAS".
 - For the Interstage Java EE Node Agent Service, right-click "Interstage Java EE Node Agent".
4. In the [Properties] dialog box, click the [Logon] tab. Select [Account], then specify the account and password of the user that was created in step 2.

4. Start the services in the following order:
 1. Start the Interstage Java EE DAS service using the `ijdasstart` command.
 2. Start the Interstage service using the `isstart` command.

Configuration of the Machine Containing the Resources that are to be Shared (Machine B)

1. Create a user with the same user name/password as the user that was created in step 2 for machine A.
2. Configure shared settings for the resources that are to be shared using the Windows(R) feature.

How to Implement the Application

Implement the application so that the shared resources are accessed using a UNC connection.



Example

To access `a.txt` under a shared directory

`\\[IP address][shared name]a.txt`

or

`\\[host name][shared name]a.txt`

Add escape characters in the actual encoding.



Note

- The Windows(R) OS feature operations such as user creation and shared settings in the configuration procedure will need to be performed on each machine. Also consider the security aspects for these operations from a Windows(R) OS feature perspective.
Example: Management of the user ID and password or control against access to shared resources by an unintended user
- This setting cannot be used when the Cluster Service is used.

3.1.12 How to Call CORBA Service applications from Java EE Applications

This section explains how to develop and run Java EE applications that call CORBA server applications running in CORBA Service environments.

Application Development Procedure

1. Describe the application interface definition (IDL)
2. Compile the IDL file
3. Client application programming
4. Compile the application

1. Describe the application interface definition (IDL)

Describe the IDL file in which the interface of the call target CORBA server application has been defined.

2. Compile the IDL file

The `IDLc` command of the environment that the CORBA server application runs on is used for the IDL file compile, as shown below.

Note that the `IDLc` products that can be used are those that were generated in V9.2 or later.

When V10 `IDLc` is used

```
IDLc -java -javaee sample.idl
```

When a pre-V10 version of IDLc is used

```
IDLc -java sample.idl
```

3. Client application programming

When the CORBA server application is called, the property that performs code conversion by the Java EE client according to the server application code type must be set.

The following property must be specified as the second ORB.init() argument (the system property that is passed when the Java VM starts up).

```
Properties props = new Properties();
props.put("com.sun.corba.iiop.encoding.ORBCodeConversionUseUnitOfIOR", "true");
Orb = org.omg.CORBA.ORB.init(args, props);
```

Note

Issue the ORB.init() method once only in the application.

Obtain the naming service object reference using one of the following methods:

- Specify the ORB initial reference argument "-ORBInitRef"

The ORB initial reference argument "-ORBInitRef" is specified the initial service that is required by the client for every service name.

Example

In the following configuration example, the ORB initial reference argument "-ORBInitRef" has been used.

For host and port, specify the host and port number that were specified for the CORBA Service of the machine that the naming service runs on.

```
String[] orbArgs = new String[ 2 ] ;
orbArgs[ 0 ] = "-ORBInitRef" ;
orbArgs[ 1 ] = "NameService=corbaloc:iiop:1.0@host:port/NameService";
Orb = ORB.init( orbArgs, nullprops);
org.omg.CORBA.Object _tmpObj = Orb.resolve_initial_references( "NameService" );
```

- Specify the corbaloc URL schema

The naming service object reference is obtained by specifying the corbaloc URL schema in string_to_object().

Example

In the following configuration example, the corbaloc URL schema has been specified.

For host and port, specify the host and port number that were specified for the CORBA Service of the machine that the naming service runs on.

```
org.omg.CORBA.Object _tmpObj =
Orb.string_to_object("corbaloc:iiop:1.0@host:port/NameService");
```

4. Compile the application

Add the IDLc product to the compile target of the Java EE application, then perform the compile.

Specifying ORB (Object Request Broker)

Specify the IIOP Service (Java EE client) as the ORB that is to be used in the application.

The methods used to specify ORB are shown below. Use one of these methods to specify the ORB that is to be used.

Note that this does not need to be specified if the IIServer cluster and the applient command are used.

- [Using the ORB.init\(\) Argument to Specify the ORB](#)
- [Specifying the ORB when the Application Starts Up](#)
- [Preparing the Configuration File to Specify the ORB](#)

For all methods, specify the IIOP Service (Java EE client) ORB by configuring the following property information:

Property name	Value that is set (Using the Java EE client)
org.omg.CORBA.ORBClass	com.sun.corba.ee.impl.orb.ORBImpl
org.omg.CORBA.ORBSingletonClass	com.sun.corba.ee.impl.orb.ORBSingleton

Using the ORB.init() Argument to Specify the ORB

Use the second ORB.init() parameter to specify the ORB.



Example

```
Properties props = new Properties();
props.put("org.omg.CORBA.ORBClass", "com.sun.corba.ee.impl.orb.ORBImpl");
props.put("org.omg.CORBA.ORBSingletonClass", "com.sun.corba.ee.impl.orb.ORBSingleton");
Orb = org.omg.CORBA.ORB.init(args, props);
```

Specifying the ORB when the Application Starts Up

Set the property information as the java command parameter when the Java application is executed. Define the required information after the -D option, as follows:



Example

```
java -Dorg.omg.CORBA.ORBClass=com.sun.corba.ee.impl.orb.ORBImpl
-Dorg.omg.CORBA.ORBSingletonClass=com.sun.corba.ee.impl.orb.ORBSingleton
<application class name>
```

Preparing the Configuration File to Specify the ORB

Create the text file that the property information will be defined in (file name: orb.properties), then store it in one of the storage destinations shown below (this will depend on the package that was installed and the JDK/JRE used).

orb.properties file content

```
org.omg.CORBA.ORBClass=com.sun.corba.ee.impl.orb.ORBImpl
org.omg.CORBA.ORBSingletonClass=com.sun.corba.ee.impl.orb.ORBSingleton
```

Storage destination:

Windows32/64

When the Interstage Studio client operation package is used

```
When the JRE6 type is used:
<Java runtime environment installation path>\jre6\lib
```

When "JDK/JRE" is used in the server package

```
When the JRE6 type is used:
C:\Interstage\jre6\lib
When the JDK 6 type is used:
C:\Interstage\jdk6\jre\lib
```

When "JBK Plug-in" is used in the client package

```
When the JRE 6 type is used:  
C:\Interstage\JBKDI\jre6\lib  
When the JDK 6 type is used:  
C:\Interstage\JBKDI\jdk6\jre\lib
```

Solaris32/64

```
When the JRE 6 type is used:  
<Java runtime environment installation path>/jre6/lib  
When the JDK 6 type is used:  
<Java runtime environment installation path>/jdk6/jre/lib
```

Linux32/64

```
When the JRE 6 type is used:  
<Java runtime environment installation path>/jre6/lib  
When the JDK 6 type is used:  
<Java runtime environment installation path>/jdk6/jre/lib
```

Specifying CLASSPATH

In standalone clients, the Java EE client runtime that is provided in the IIOP Service (Java EE client) must be specified in the CLASSPATH environment variable.

Specify the following jar files in the CLASSPATH environment variable:

Windows32/64

jar file name	Storage location
appserv-rt-client.jar	<Interstage installation folder>\F3FMisjee\lib

Solaris32/64 Linux32/64

jar file name	Storage location
appserv-rt-client.jar	/opt/FJSVisjee/lib



Note

Do not specify the CORBA-Java runtimes that are provided in the multilanguage service CORBA Service (ODjava4.jar/ODporb4.jar/CosNaming4.jar/InterfaceRep4.jar) in the CLASSPATH environment variable.

3.1.13 Creating Web Applications when Using Session Recovery

This section explains the requirements of the web application in order to use session recovery:

- The distributable tag must be defined in the web application deployment descriptor (web.xml).
- The objects that are stored in the session attribute must implement the java.io.Serializable interface (the objects must be serializable).
If this requirement is not satisfied, IllegalArgumentException will occur when setAttribute is executed.
- For unserializable instance variables retained by the objects that are stored in the session attribute, declare the transient modifier (this is not a target of backup and recovery).
- If objects representing resources unique to the operating system and process (Java VM) were stored in the session, the behavior cannot be guaranteed. For example, the Thread class or I/O-related classes (classes that have inherited the InputStream or Writer classes, for example), the CORBA or EJB client (stub, org.omg.CORBA.ORB or javax.naming.Context, for example, and the classes that retain the references to the objects that are subclassified by these) are resources that are unique to the Java VM. When developing user defined objects, do not inherit or retain references to this type of class.

- All the information that is required for restoring application requests must be stored in the session attribute.

In the session recovery processing, only the information stored in the session attribute will be restored. Information stored in different objects or classes to the session will not be restored. For this reason, even if session recovery processing is performed when the application request processing has a dependency on dynamic information other than the session attribute, the application in the recovery destination web container may not always be able to process requests correctly.

- To change an object class that is stored in the session attribute and continue using a session that was backed up before the change, it will be necessary to create or correct the object class according to the required action shown in "[How to Change Object Classes that are Stored in the Session Attribute](#)". If this requirement is not satisfied, when the attempt is made to restore the object saved in the class prior to making the correction, `java.io.InvalidClassException` is output to the log and the application request is processed as a new session.



Note

The greater the size of the object that is stored in the session attribute, the slower the execution speed.

How to Change Object Classes that are Stored in the Session Attribute

There are two methods to change an object class that is stored in the session attribute. These are as follows:

- [Preparing for Future Corrections when Creating the Object Class](#)
- [Changing the Object Class without Having Prepared for Future Corrections](#)

Preparing for Future Corrections when Creating the Object Class

Anticipate that there will be future attribute corrections when creating the object class. To use information that was stored prior to making the correction, perform the following action.

a) When creating the object class

Declare `serialVersionUID` as the class variable when creating the object class, and set an optional value (the "long" integer).

Example of the object class before the correction

```
package com.fujitsu.sample;
import java.io.*;

public class Company implements Serializable {

    private String longName;
    private String shortName;
    private String address;
    static final long serialVersionUID = 10203040506070809L; .....(1)

    public Company(String longName,
                   String shortName,
                   String address) {
        :
        :
    }
}
```

(1): Sets the optional (unique) "long" integer value.

b) When correcting the object class

Change the object class (add the attribute).

Example of the object class after the correction

```

package com.fujitsu.sample;
import java.io.*;

public class Company implements Serializable {

    private String longName;
    private String shortName;
    private String address;
    private String telNumber; .....(2)
    static final long serialVersionUID = 10203040506070809L;

    public Company(String longName,
                    String shortName,
                    String address,
                    String telNumber ) {
        :
        :
    }
}

(2): Adds the telNumber attribute.

```

Changing the Object Class without Having Prepared for Future Corrections

To use information that was stored prior to making the correction without having prepared for future corrections when creating the object class, perform the following action.

a) When creating the object class

Example of the object class before the correction

In the object class before the correction, there is no support for serialVersionUID.

```

package com.fujitsu.sample;
import java.io.*;

public class Company implements Serializable {

    private String longName;
    private String shortName;
    private String address;

    public Company(String longName, String shortName, String address) {
        :
        :
    }
}

```

b) When correcting the object class

1. For the class before the correction, execute the serialver command to obtain serialVersionUID.

How to obtain serialVersionUID

```

> serialver com.fujitsu.sample.Company <-- class name
com.fujitsu.sample.Company:    static final long
serialVersionUID = 7242562793746307240L; <-- serialVersionUID is notified.
>

```

2. Set serialVersionUID that was obtained in the class after the correction as the class variable.

Example of the object class after the correction

```

package com.fujitsu.sample;
import java.io.*;

```

```

public class Company implements Serializable {

    private String    longName;
    private String    shortName;
    private String    address;
    private String    telNumber;          ..(3)
    static final long serialVersionUID = 7242562793746307240L; ..(4)

    public Company(String longName, String shortName, String address, String telNumber ) {
        :
        :
    }
}

```

(3): Adds the telNumber attribute.
(4): Sets serialVersionUID that was obtained by executing the serialver command as the class variable.

Additional information

- The object class before and after the correction can be given compatibility by adding a unique serialVersionUID.
- If the session information backed up in the object class prior to making the correction was recovered after the correction, a default value (String type: null, Int type: 0, etc.) is notified to the attribute value that was added. An error is not notified.
- For details on object serialization, refer to the following Java specification:
<http://docs.oracle.com/javase/6/docs/technotes/guides/serialization/index.html>

3.1.14 Notes About Integration with IPCOM

Be aware of the following when using the load balancing function for IIOP communication that is integrated with IPCOM.

Using Stateful Session Beans

To use Stateful Session Beans, use load balancing based on the EJB dispatch feature. If load balancing is not performed using the EJB dispatch feature, sessions will not be inherited.

Specifying an ID that is Unique in the unique-id Tag

Specify an ID that is unique in the IJServer cluster in the unique-id tag of the Interstage deployment descriptor that is contained in the module when the application is created.

If the unique-id tag was not specified, a number is added automatically at the time of deployment. In this case, even when the application that was deployed is the same it is regarded as being different if the unique-id tag is different. For this reason, an error will occur in load balancing between multiple servers if the same application was deployed to these servers, so define the unique-id tag before deployment.



Example

Example: Specifying the unique-id tag

```

<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE sun-ejb-jar PUBLIC
"-//Sun Microsystems, Inc.//DTD Application Server 9.0 EJB 3.0//EN"
"http://www.sun.com/software/appserver/dtds/sun-ejb-jar_3_0-0.dtd">
<sun-ejb-jar>
  <enterprise-beans>
    <unique-id>2</unique-id>
    <ejb>
      <ejb-name>hogehoge</ejb-name>
      <jndi-name>MyEjb</jndi-name>
    </ejb>
  </enterprise-beans>
</sun-ejb-jar>

```

```
</enterprise-beans>
</sun-ejb-jar>
```

The Interstage deployment descriptor file that the unique-id tag is specified in is different, depending on the format of the module that is deployed.

Format of the module that is deployed	Interstage deployment descriptor file
EAR	sun-application.xml
ejb-jar	sun-ejb-jar.xml

Specifying a Virtual Host Name in the JNDI Name

There are two methods that are used to specify the connection destination for when different IJServer cluster EJB applications are called. These methods are explained below.

1. Specify the connection destination for another naming service in the settings for the JNDI service (Recommended)

The feature for linking to another naming service is used to specify the host name and IIOP listener port number of another process or remote server for the external naming service URL in the settings for the JNDI service for the cluster. To use the load balancing feature for IIOP communications linked to IPCOM, the virtual host name used for IPCOM linkage must be specified as the remote server host name that is specified in the external naming service URL.

2. Specify the connection destination in the Interstage deployment descriptor file using the Interoperable Naming Service rules

The rules of the Interoperable Naming Service (INS) are used to specify the host name, IIOP listener port number and JNDI name for another process or remote server in the Interstage deployment descriptor file. To use the load balancing feature for IIOP communications linked to IPCOM, a virtual host name for an existing IPCOM device must be specified as this remote server host name.

To call different IJServer cluster EJB applications, as in the explanation in "Environment Naming Context" in the "Functionality Provided in the Java EE Application" chapter, the other process or remote server host name, IIOP listener port number, and JNDI name must be specified in the Interstage deployment descriptor file using the Interoperable Naming Service ("INS") rules. To use the load balancing function for IIOP communication that is integrated with IPCOM, specify the virtual host name used for IPCOM linkage in this remote server host name.

3.2 Deployment Descriptor

This section explains the deployment descriptor.

deployment descriptor Regulated by the Java EE Specifications

The following descriptors are explained:

- [Java EE Application Deployment Descriptor \(application.xml\)](#)
- [Web Application Deployment Descriptor \(web.xml\)](#)

Interstage deployment descriptor

The deployment descriptor ("Interstage deployment descriptor") that defines the behavior of this product can be included in the deployment module. The details shown below are for the Interstage deployment descriptor. For details, refer to "[3.2.3 Interstage Deployment Descriptor](#)".

Interstage deployment descriptor	Deployment module
Interstage Application Deployment Descriptor (sun-application.xml)	ear file
Interstage Web Application Deployment Descriptor (sun-web.xml)	war file
Interstage EJB Application Deployment Descriptor (sun-ejb-jar.xml)	ejb-jar file
Interstage CMP Mappings Deployment Descriptor (sun-cmp-mappings.xml)	ejb-jar file

Interstage deployment descriptor	Deployment module
Interstage Application Client Deployment Descriptor (sun-application-client.xml)	App Client file
Interstage ACC Deployment Descriptor (sun-acc.xml)	Note: This is not included in the module.

Include the Interstage deployment descriptor (except for sun-acc.xml) in the same location as the Java EE rules deployment descriptor according to the module type.

3.2.1 Notes on the Deployment Descriptor (web.xml)

For details on the deployment descriptor, refer to the Java EE rules and its sub rules. This section explains the points that should be noted.

In Servlet 2.5, XML schema-based description has not changed, however the namespace has changed in line with the version update.

Servlet 2.4 deployment descriptor (web.xml) description format

```
<?xml version="1.0" encoding="UTF-8" ?>
<web-app xmlns="http://java.sun.com/xml/ns/j2ee"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/j2ee http://java.sun.com/xml/ns/j2ee/web-
app_2_4.xsd"
  version="2.4">
...

```

Servlet 2.5 deployment descriptor (web.xml) description format

```
<?xml version="1.0" encoding="UTF-8" ?>
<web-app xmlns="http://java.sun.com/xml/ns/javaee"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/javaee http://java.sun.com/xml/ns/javaee/web-
app_2_5.xsd"
  version="2.5">
...

```

Additionally, tags related to the functionality added in Servlet 2.5 have been added, and existing tag definition methods have been improved. Tags that have been added/improved are explained below.

Addition of the metadata-complete Attribute in the <web-app> Tag

When "true" is specified, the annotation is not analyzed even if it is described when the web container starts.

When "false" is specified, or the metadata-complete attribute is not described, the annotation is analyzed when the web container starts.



Note

- If the format of the deployment descriptor (web.xml) is compliant with a version other than "Java(TM) Servlet Specification Version 2.5", the web container does not analyze the annotation.
- If the annotation is not analyzed in the web application in which it is described, the field and the method in which the annotation is described cannot use the annotation functionality provided in Servlet 2.5 and JSP 2.1 when the web application is executed. For this reason, the web application may not return the expected results.



Example

When the annotation is not analyzed

```
<?xml version="1.0" encoding="UTF-8" ?>
<web-app xmlns="http://java.sun.com/xml/ns/javaee"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/javaee http://java.sun.com/xml/ns/javaee/web-
```

```
app_2_5.xsd"
  version="2.5"
  metadata-complete="true">
  ...
```

Multiple Definitions of the <url-mapping> Tag

In Servlet 2.4, only one lower element <url-pattern> tag can be specified for the <servlet-mapping> tag defined in the deployment descriptor (web.xml). Accordingly, to specify multiple URLs for one servlet definition, multiple servlet mapping must be described.

In Servlet 2.5, it is now possible to specify multiple lower element <url-pattern> tags for the <servlet-mapping> tag defined in the deployment descriptor (web.xml). Accordingly,, the method that is used to describe multiple URLs for one servlet definition has become simpler.

In the following examples, the method that is used to set the "/test/one/HelloWorld" and "/test/two/HelloWorld" URLs for the "HelloWorldServlet" servlet is shown.



Example

Servlet 2.4 deployment descriptor (web.xml) description format

```
<servlet>
  <servlet-name>HelloWorld</servlet-name>
  <class-name>HelloWorld</class-name>
</servlet>

<servlet-mapping>
  <servlet-name>HelloWorld</servlet-name>
  <url-pattern>/test/one/HelloWorld</url-pattern>
</servlet-mapping>

<servlet-mapping>
  <servlet-name>HelloWorld</servlet-name>
  <url-pattern>/test/two/HelloWorld</url-pattern>
</servlet-mapping>
```



Example

Servlet 2.5 deployment descriptor (web.xml) description format

```
<servlet>
  <servlet-name>HelloWorld</servlet-name>
  <class-name>HelloWorld</class-name>
</servlet>

<servlet-mapping>
  <servlet-name>HelloWorld</servlet-name>
  <url-pattern>/test/one/HelloWorld</url-pattern>
  <url-pattern>/test/two/HelloWorld</url-pattern>
</servlet-mapping>
```

Multiple Definitions of the <servlet-name> Tag

In Servlet 2.4, only one lower element <url-pattern>and <servlet-name> tag can be specified for the <filter-mapping> tag defined in the deployment descriptor (web.xml). Accordingly, to specify multiple applications for one filter definition, multiple filter mapping must be described.

In Servlet 2.5, it is now possible to specify multiple lower element `<url-pattern>` and `<servlet-name>` tags for the `<filter-mapping>` tag defined in the deployment descriptor (web.xml). Accordingly, the method that is used to describe multiple applications for one filter definition has become simpler.

In the following examples, the filter processing for requests to the `/foo/*` and `/bar/*` URLs and the "SampleServlet" servlet is shown.



Example

Servlet 2.4 deployment descriptor (web.xml) description format

```
<filter>
  <filter-name>TestFilter</filter-name>
  <class-name>TestFilter</class-name>
</filter>

<filter-mapping>
  <filter-name>TestFilter</filter-name>
  <url-pattern>/foo/*</url-pattern>
</filter-mapping>

<filter-mapping>
  <filter-name>TestFilter</filter-name>
  <servlet-name>SampleServlet</servlet-name>
</filter-mapping>

<filter-mapping>
  <filter-name>TestFilter</filter-name>
  <url-pattern>/bar/*</url-pattern>
</filter-mapping>
```



Example

Servlet 2.5 deployment descriptor (web.xml) description format

```
<filter>
  <filter-name>TestFilter</filter-name>
  <class-name>HelloWorld</class-name>
</filter>

<filter-mapping>
  <filter-name>TestFilter</filter-name>
  <url-pattern>/foo/*</url-pattern>
  <servlet-name>SampleServlet</servlet-name>
  <url-pattern>/bar/*</url-pattern>
</filter-mapping>
```

Extension of the `<http-method>` Tag

In Servlet 2.4, the following can be specified as HTTP method names to allow access in the deployment descriptor (web.xml) security role settings.

- GET
- POST
- PUT
- DELETE
- HEAD

- OPTIONS
- TRACE

In Servlet 2.5, the HTTP method that allows access is relaxed as it is compliant with "HTTP 1.1 Specification Section 2.2". Unlike Servlet 2.4, there is no limit to the method name and the security role can also be set for the HTTP method that implements characters that are regulated by "HTTP 1.1 Specification Section 2.2".



- When a character string containing () < > @ , ; : " / [] ? = { } \ CR LF Space is specified, a deployment error occurs.
- When a character string containing numbers is specified and 'Verify' is enabled when the application is deployed, a deployment error occurs.

3.2.2 Deployment Descriptor Regulated by the Java EE Rules

3.2.2.1 Java EE Application Deployment Descriptor (application.xml)

This section explains the Java EE application deployment descriptor.

- Description Format
- List of Tags
- Notes

Description Format

```
<?xml version="1.0" encoding="UTF-8" ?>
<application xmlns="http://java.sun.com/xml/ns/javaee"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
  http://java.sun.com/xml/ns/javaee/application_5.xsd"
  version="5">
  <description>...</description>
  <display-name>...</display-name>
  <icon>
    <small-icon>...</small-icon>
    <large-icon>...</large-icon>
  </icon>
  <module>
    <connector>...</connector> or
    <ejb>...</ejb> or
    <java>...</java> or
    <web>
      <web-uri>...</web-uri>
      <context-root>...</context-root>
    </web>
    <alt-dd >...</alt-dd>
  </module>
  <security-role>
    <description>...</description>
    <role-name>...</role-name>
  </security-role>
  <library-directory>...</library-directory>
</application>
```

List of Tags

The list of Java EE application deployment descriptor tags is shown below. For details on the method that is used to describe the list, refer to "How to Interpret the List of Tags" below.

Tag name	Overview
application	Start and end of the deployment descriptor
module	Definition of the module
connector	Connector path
ejb	EJB module path
java	Java EE application client path
web	Definition of the web module
web-uri	Web module path
context-root	Context root
alt-dd	Deployment descriptor path of the module
security-role*	Security role
description*	Explanation
role-name	Security role name
library-directory?	Library storage path

How to Interpret the List of Tags

The following is an explanation of the symbols used in the list of tags.

Symbol	Meaning
?	There is no need to define the tag. Alternatively, only one tag can be defined.
*	There is no need to define the tag. Alternatively, multiple tags can be defined.
+	One or more tags must be described.

Note

- Definitions not described in the manual are not supported.
- `<?xml...>` and `<application xmlns...>` at the start are used to describe the XML declaration and schemaLocation and must therefore be described at the start of the deployment descriptor file.
- The order of description for each tag must follow the order described above.
- When a tag is omitted, the tag definition is invalid, or an error occurs.
- All elements are case sensitive.
- The J2EE 1.3 or 1.4 deployment descriptor description format can also be used.
- If the deployment descriptor description format of an application that has already been deployed is changed from J2EE 1.3 or 1.4 to the Java EE description format, the application must be redeployed.

Explanation About the Tags

`application`

This defines the start and end of the Java EE application environment definition file (deployment descriptor).

`module` (parent tag :[application](#))

This describes the definition for modules contained in the Java EE application (EAR file) for each module.

One of the `<connector>`, `<ejb>`, `<java>`, or `<web>` tags must be defined.

connector (parent tag [:module](#))

This defines the connector (RAR file) path.

ejb (parent tag [:module](#))

This defines the EJB module (ejb-jar file) path.

java (parent tag [:module](#))

This defines the Java EE application client (client-jar file) path.

web (parent tag [:module](#))

This describes the definition for the web module.

`<web-uri>`

This defines the web module (WAR file) path.

`<context-root>`

This defines the context root.

This value must be unique in the EAR file.

alt-dd (parent tag [:module](#))

This defines the module deployment descriptor path.

When this is omitted, the deployment descriptor that is contained in the module is used.

security-role (parent tag [:application](#))

This defines the security role that is used for access restriction.

`<role-name>`

This defines the security role name.

The security role name that is specified in the `<role-link>` tag under the `<servlet>`-`<security-role-ref>` tag in the web application deployment descriptor (web.xml) must be defined under the `<role-name>` tag of the `<security-role>` tag.

The value must be unique in the EAR file.

library-directory (parent tag [:application](#))

This defines the storage destination path of the library contained in the Java EE application (EAR file). The jar file that is stored in the specified directory can be used from the component that is contained in the Java EE application (EAR file).

When this tag is omitted, it is the same as specifying lib.

3.2.2.2 Web Application Deployment Descriptor (web.xml)

This section explains the web application deployment descriptor.

- Description Format
- List of Tags
- Notes

Description Format

```
<?xml version="1.0" encoding="UTF-8" ?>
<web-app xmlns="http://java.sun.com/xml/ns/javaee"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
  http://java.sun.com/xml/ns/javaee/web-app_2_5.xsd"
  version="2.5">
  <display-name>...</display-name>
  <distributable/>
  <context-param>
    <param-name>...</param-name>
    <param-value>...</param-value>
```

```

</context-param>
<filter>
  <filter-name>...</filter-name>
  <filter-class>...</filter-class>
  <init-param>
    <param-name>...</param-name>
    <param-value>...</param-value>
  </init-param>
</filter>
<filter-mapping>
  <filter-name>...</filter-name>
  <servlet-name>...</servlet-name>
  <dispatcher>...</dispatcher>
</filter-mapping>
<filter-mapping>
  <filter-name>...</filter-name>
  <url-pattern>...</url-pattern>
  <dispatcher>...</dispatcher>
</filter-mapping>
<listener>
  <listener-class>...</listener-class>
</listener>
<servlet>
  <servlet-name>...</servlet-name>
  <servlet-class>...</servlet-class> or
  <jsp-file>...</jsp-file>
  <init-param>
    <param-name>...</param-name>
    <param-value>...</param-value>
  </init-param>
  <load-on-startup>...</load-on-startup>
  <run-as>
    <role-name>...</role-name>
  </run-as>
  <security-role-ref>
    <role-name>...</role-name>
    <role-link>...</role-link>
  </security-role-ref>
</servlet>
<servlet-mapping>
  <servlet-name>...</servlet-name>
  <url-pattern>...</url-pattern>
</servlet-mapping>
<session-config>
  <session-timeout>...</session-timeout>
</session-config>
<mime-mapping>
  <extension>...</extension>
  <mime-type>...</mime-type>
</mime-mapping>
<welcome-file-list>
  <welcome-file>...</welcome-file>
</welcome-file-list>
<error-page>
  <error-code>...</error-code> or
  <exception-type>...</exception-type>
  <location>...</location>
</error-page>
<security-constraint>
  <web-resource-collection>
    <web-resource-name>...</web-resource-name>
    <url-pattern>...</url-pattern>
    <http-method>...</http-method>
  </web-resource-collection>
  <http-method-requirement>
    <http-method>...</http-method>
  </http-method-requirement>
</security-constraint>

```

```

</web-resource-collection>
<auth-constraint>
  <role-name>...</role-name>
</auth-constraint>
<user-data-constraint>
  <transport-guarantee>...</transport-guarantee>
</user-data-constraint>
</security-constraint>
<login-config>
  <auth-method>...</auth-method>
  <realm-name>...</realm-name>
  <form-login-config>
    <form-login-page>...</form-login-page>
    <form-error-page>...</form-error-page>
  </form-login-config>
</login-config>
<security-role>
  <role-name>...</role-name>
</security-role>
<env-entry>
  <env-entry-name>...</env-entry-name>
  <env-entry-type>...</env-entry-type>
  <env-entry-value>...</env-entry-value>
</env-entry>
<ejb-ref>
  <ejb-ref-name>...</ejb-ref-name>
  <ejb-ref-type>...</ejb-ref-type>
  <home>...</home>
  <remote>...</remote>
  <ejb-link>...</ejb-link>
  <mapped-name>...</mapped-name>
</ejb-ref>
<ejb-local-ref>
  <description>...</description>
  <ejb-ref-name>...</ejb-ref-name>
  <ejb-ref-type>...</ejb-ref-type>
  <local-home>...</local-home>
  <local>...</local>
  <ejb-link>...</ejb-link>
</ejb-local-ref>
<resource-env-ref>
  <resource-env-ref-name>...</resource-env-ref-name>
  <resource-env-ref-type>...</resource-env-ref-type>
  <mapped-name>...</mapped-name>
</resource-env-ref>
<resource-ref>
  <res-ref-name>...</res-ref-name>
  <res-type>...</res-type>
  <res-auth>...</res-auth>
  <mapped-name>...</mapped-name>
</resource-ref>
<message-destination-ref>
  <message-destination-ref-name>...</message-destination-ref-name>
  <message-destination-type>...</message-destination-type>
  <message-destination-usage>...</message-destination-usage>
  <message-destination-link>...</message-destination-link>
</message-destination-ref>
<persistence-context-ref>
  <description>...</description>
  <persistence-context-ref-name>...</persistence-context-ref-name>
  <persistence-unit-name>...</persistence-unit-name>
</persistence-context-ref>
<persistence-unit-ref>

```

```

<description>...</description>
<persistence-unit-ref-name>...</persistence-unit-ref-name>
<persistence-unit-name>...</persistence-unit-name>
</persistence-unit-ref>
<message-destination>
  <message-destination-name>...</message-destination-name>
  <mapped-name>...</mapped-name>
</message-destination>
<locale-encoding-mapping-list>
  <locale-encoding-mapping>
    <locale>...</locale>
    <encoding>...</encoding>
  </locale-encoding-mapping>
</locale-encoding-mapping-list>
<jsp-config>
  <taglib>
    <taglib-uri>...</taglib-uri>
    <taglib-location>...</taglib-location>
  </taglib>
  <jsp-property-group>
    <url-pattern>...</url-pattern>
    <el-ignored>...</el-ignored>
    <page-encoding>...</page-encoding>
    <scripting-invalid>...</scripting-invalid>
    <is-xml>...</is-xml>
    <include-prelude>...</include-prelude>
    <include-coda>...</include-coda>
  </jsp-property-group>
</jsp-config>
</web-app>

```

List of Tags

The list of web application deployment descriptor tags is shown below. For details on the method that is used to describe the list, refer to "How to Interpret the List of Tags" below.

Tag name	Overview
web-app	Start and end of the deployment descriptor
display-name*	Servlet context name
distributable	The application can support session sharing between multiple Java VM machines
context-param*	Initial parameter set for the servlet context
param-name	Initial parameter name
param-value	Value specified in the initial parameter
filter*	Filter class definition
filter-name	Filter class alias
filter-class	Full class name of the filter class
init-param*	Initial parameter
param-name	Initial parameter name
param-value	Initial parameter value
filter-mapping*	Definition for the target that applies the filter class
filter-name	Filter name
url-pattern*	URL pattern for filter and mapping

Tag name		Overview
	servlet-name	Servlet name for filter and mapping
	dispatcher*	Timing of the filter call
listener*		Event listener definition
	listener-class	Full class name of the event listener
servlet*		Servlet definition
	servlet-name	Servlet and JSP name
	servlet-class	Full class name of the servlet
	jsp-file	JSP file name
	init-param*	Initial parameter
	param-name	Initial parameter name
	param-value	Initial parameter value
	load-on-startup?	Startup when the web container starts
	run-as?	Role that the application uses to run
	role-name	Role name
	security-role-ref*	Security role
	role-name	Security role name
	Role-link	Security role name specified in the <security-role> tag
servlet-mapping*		Servlet mapping
	Servlet-name	Servlet and JSP name
	url-pattern+	URL pattern that performs mapping with the Servlet and JSP
session-config*		Session parameter definition
	session-timeout?	Session timeout time
mime-mapping*		mime type definition
	Extension	File extension of the file that defines the mime type
	mime-type	mime type
welcome-file-list*		welcome file definition
	welcome-file+	welcome file
error-page*		Resource definition for the exception type
	error-code	HTTP error code
	exception-type	Full class name of the exception type
	Location	Resource for when an error occurs
security-constraint*		Access restriction definition
	web-resource-collection+	Web resource collection definition
	Web-resource-name	Web resource collection name
	url-pattern+	URL pattern
	http-method*	HTTP method
	auth-constraint?	Security role
	Role-name*	Security role name
	user-data-constraint?	Data protection attribute

Tag name		Overview
	Transport-guarantee	Transfer method between the client and server
login-config*		User authentication method
	Auth-method?	Authentication method
	Realm-name?	Realm name used in HTTP Basic authentication
	form-login-config?	Form base authentication definition
	form-login-page	Login page
	form-error-page	Error page
security-role*		Security role
	role-name	Security role name
env-entry*		Environment entry
	env-entry-name	Environment entry name
	env-entry-type?	Environment entry value type
	env-entry-value?	Entry value of the environment entry
ejb-ref*		Referenced EJB object
	ejb-ref-name	EJB reference name
	ejb-ref-type?	EJB object type
	Home?	EJB home interface full name
	remote?	EJB remote interface full name
	ejb-link?	EJB name in the linked Java EE application package
	mapped-name?	JNDI name that is mapped
ejb-local-ref*		EJB object of the referenced local interface
	ejb-ref-name	EJB local reference name
	ejb-ref-type?	EJB object type
	local-home?	EJB local home interface full name
	Local?	EJB local interface full name
	ejb-link?	EJB name in the linked Java EE application package
resource-env-ref*		External resource environment
	resource-env-ref-name	Resource environment reference name
	resource-env-ref-type?	Resource environment reference type
	mapped-name?	JNDI name that is mapped
resource-ref*		External resource
	res-ref-name	Resource reference name
	res-type?	Resource type
	res-auth?	Method that is used to specify the resource connection information
	mapped-name?	JNDI name that is mapped
message-destination-ref*		Destination reference
	message-destination-ref-name	Destination reference name
	message-destination-type?	Destination type
	message-destination-usage?	Destination usage

Tag name		Overview
	message-destination-link?	Destination link
	persistence-context-ref*	persistence context reference
	description*	Explanation
	persistence-context-ref-name	persistence context reference name
	persistence-unit-name?	persistence unit name
	persistence-unit-ref*	persistence unit reference
	description*	Explanation
	persistence-unit-ref-name	persistence unit reference
	persistence-unit-name?	persistence unit name
	message-destination*	Destination
	message-destination-name	Destination name
	mapped-name?	Destination mapping name
	locale-encoding-mapping-list*	Locale and character code definition list
	locale-encoding-mapping+	Locale and character code definition
	Locale	Locale
	Encoding	Character code
	jsp-config*	Common value definition in JSP
	Taglib*	Tag library
	taglib-uri	Tag library URI
	taglib-location	Tag library TLD file name
	jsp-property-group*	JSP definition and restriction
	url-pattern+	URL pattern of JSP that applies the tag
	el-ignored?	Handling of Expression Language
	page-encoding?	Character code
	scripting-invalid?	Valid or invalid script description
	Is-xml?	Is it processed as JSP Documents (XML syntax)?
	include-prelude*	URI file that is included at the start of JSP
	include-coda*	URI file that is included at the end of JSP

How to Interpret the List of Tags

The symbols used in the list of tags are explained in the following table:

Symbol	Meaning
?	There is no need to define the tag. Alternatively, only one tag can be defined.
*	There is no need to define the tag. Alternatively, multiple tags can be defined.
+	One or more tags must be described.

Notes

- Definitions not described in the manual are not supported.
- `<?xml...>` and `<web-app xmlns...>` at the start are used to describe the XML declaration and schemaLocation and must therefore be described at the start of the deployment descriptor file.

- The order of description for each tag must follow the order described above.
- When a tag is omitted, the tag definition is invalid, or an error occurs.
- All elements are case-sensitive.
- If a definition not mentioned in the manual is specified, note that the web container may start without an error message being output.
- The Servlet 2.2, 2.3, or 2.4 deployment descriptor description format can also be used.
- If the deployment descriptor description format of an application that has already been deployed is changed from Servlet2.2 or 2.3 to the Servlet2.4 description format, the application must be redeployed.

Explanation About the Tags

web-app

This defines the start and end of the web application environment definition file (deployment descriptor). The attributes that can be specified are shown below.

Attribute name	Default	Meaning
metadata-complete	False	This specifies whether the annotation function added in Servlet 2.5 and JSP 2.1 is enabled or not. <ul style="list-style-type: none"> - true: The annotation function is disabled. - false: The annotation function is enabled.

display-name (parent tag :[web-app](#))

This defines the servlet context name.

The servlet context name that is set can be obtained using the following method.

- The `javax.servlet.ServletContext.getServletContextName()` method

distributable (parent tag :[web-app](#))

Define this if the application supports session sharing between multiple Java VM machines.

It is mandatory when using session recovery.

context-param (parent tag :[web-app](#))

This specifies the initial parameter that is set in the servlet context. The common information for all web application servlets can be set in/taken from the servlet context. Duplicated initial parameter names cannot be defined, however.

The following methods are used.

- The `javax.servlet.ServletContext.getInitParameterNames()` method
- The `javax.servlet.ServletContext.getInitParameter()` method

`<param-name>`

This defines the servlet context initial parameter name. The parameter name must be described. If this value is omitted, the parameter value is set for the null character.

`<param-value>`

This defines the value that is specified in the servlet context initial parameter. If this value is omitted, the null character is set.

filter (parent tag :[web-app](#))

This defines the filter class.

`<filter-name>`

This is the alias of the filter class. A name that is unique is specified.

This name is matched with the servlet name and the URI pattern defined in the `<filter-mapping>` tag.

<filter-class>

This specifies the full class name of the filter class that is mapped.

<init-param>

This sets the name and value as a pair for the initial parameter.

If there is more than one parameter, a separate <init-param> tag is used for each parameter.

<param-name>

This sets the initial parameter name.

This is mandatory when the <init-param> tag is used.

<param-value>

This sets the initial parameter value.

This is mandatory when the <init-param> tag is used.

filter-mapping (parent tag :[web-app](#))

This defines the target for applying the filter class.

In the <filter-mapping> tag, specify which filter should be used in what order for the request in the web container.

More than one <filter-mapping> tag can be specified. The order in which the filters are executed is determined as follows.

1. The <filter-mapping> tag in which the <url-pattern> element is defined is enabled.
If more than one <filter-mapping> tag containing the <url-pattern> element is set in the web.xml, the order in which the filters are executed is determined by the order of definition.
2. The <filter-mapping> tag in which the <servlet-name> element is defined is enabled.
If more than one <filter-mapping> tag containing the <servlet-name> element is set in the web.xml, the order in which the filters are executed is determined by the order of definition.

<filter-name>

A filter name that is unique is specified.

This name must match with the <filter-name> tag value in the <filter> tag.

<url-pattern>

This specifies the URL pattern that performs the filter mapping.

It cannot be specified at the same time as the <servlet-name> tag.

The URL is described as follows.

- If the URL is a single URL
The name called by the URL is described.
Example: /servlet/servlet1
- If the URL begins with a specific prefix (path, identifier)
Add "/" to the end.
Example: /prefix/*
- If the URL has a specific file extension
This is described using "*.xxx".
Example: *.do

If a file with the specific file extension "*.xxx" is specified using this file extension, it cannot be specified together with the prefix.

Example: /path/*.do cannot be specified.

If a file that has a specific file extension is defined, the files of the entire web application will be the target.

<servlet-name>

This specifies the servlet name that performs the filter mapping.

It cannot be specified at the same time as the <url-pattern> tag.

The name specified in the <servlet-name> tag of the <[servlet](#)> tag is described in the servlet name. If '*' is specified, it is enabled for all servlet names. If a servlet name that has not been specified is described, or if the value is omitted, it will be invalid or a definition error will occur.

<dispatcher>

This specifies the timing of the filter call.

The following values are specified.

- REQUEST (this is the default value)
The filter class is enabled for the request from the client.
- FORWARD
The filter class is enabled during the RequestDispatcher forward() method or JSP forward action.
- INCLUDE
The filter class is enabled at the time of dynamic include, such as the RequestDispatcher include() method or the JSP include action.
- ERROR
The filter class is enabled at the time of error page transition.

listener (parent tag :[web-app](#))

If a certain process needs to be performed for the event that occurred in the web application, the implementation class name is defined here. If the <listener> tag of the TLD (Tag Library Description file) is defined, both listeners are enabled.

<listener-class>

Specify the full class name of the class that is used to process the following events.

- Start/stop context
(javax.servlet.ServletContextListener interface implementation class)
- Add/replace/delete ServletContext attribute
(javax.servlet.ServletContextAttributeListener interface implementation class)
- Create new/delete session
(javax.servlet.http.HttpSessionListener interface implementation class)
- Add/replace/delete attribute in the session
(javax.servlet.http.HttpSessionAttributeListener interface implementation class)
- Start/end request
(javax.servlet.ServletRequestListener interface implementation class)
- Add/replace/delete attribute in the request
(javax.servlet.ServletRequestAttributeListener interface implementation class)

If a class name that does not exist is described, the web application startup will fail.

servlet (parent tag :[web-app](#))

This defines the servlet attribute, such as the servlet initial parameter and alias.

<servlet-name>

This defines the servlet and JSP name.

This value is also used to specify the target servlet name in the <[servlet-mapping](#)> tag or <[filter-mapping](#)> tag.

<servlet-class>

This defines the full class name of the servlet.

This is mandatory when the servlet is defined.



Note

- When the web service application is defined, the complete class name is defined for the endpoint implementation class.
- The servlet definition is not required for web service applications.

<jsp-file>

This defines the JSP file name using the relative path from the web application root directory. '/' is added at the start.

This is mandatory when the JSP file is defined.

Windows32/64

When the directory is described using the relative path, the directories are separated using '/', not '\\.

`<init-param>`

This sets the name and value as a pair for the initial parameter.

If there is more than one parameter, a separate `<init-param>` tag is used for each parameter.

`<param-name>`

This sets the initial parameter name.

This is mandatory when the `<init-param>` tag is used.

`<param-value>`

This sets the initial parameter value.

This is mandatory when the `<init-param>` tag is used.

`<load-on-startup>`

This defines the startup when the web container starts up.

The order in which the Servlet and JSP are loaded is defined using a range from -2147483648 to 2147483647. Only numbers can be specified. The order of loading starts with the lowest numbers first.

- In the following cases, the Servlet or JSP is loaded at the end.
 - When an empty tag is specified (Example: `<load-on-startup></load-on-startup>`)
- In the following cases, the Servlet or JSP are loaded when they are called.
 - When a negative value is specified
 - When a tag is omitted

`<run-as>`

This defines the role that is used to run the application.

To specify the `<run-as>` tag, the `<security-role-mapping>` tag must be defined in the Interstage deployment descriptor. If this is not defined, deployment of the application will fail.

`<role-name>`

This specifies the role name.

`<security-role-ref>`

This defines the security role reference used in the servlet code.

`<role-name>`

This specifies the security role name used in the servlet code.

This is mandatory when the `<security-role-ref>` tag is defined.

This can be used as the parameter of the `javax.servlet.http.HttpServletRequest.isUserInRole()` method.

`<role-link>`

This defines the security role name that is defined in the `<security-role>` tag.

This is mandatory when the `<security-role-ref>` tag is defined.

Servlet-mapping (parent tag :[web-app](#))

This defines the servlet mapping for the URL for the Servlet and JSP.

It can be used for a different Servlet and JSP without showing the specified URL file or Servlet.

The `<servlet-mapping>` tag is defined after the `<servlet>` tag in which the Servlet and JSP name is defined. If it is described before the `<servlet>` tag, the web application startup will fail.

When the same URL is defined more than once in the `<url-pattern>` tag, the servlet mapping that was defined last is used.

When the specified URL is valid for multiple servlet mapping, the priority is as follows (highest first, lowest last).

1. The `url-pattern` tag contains a file or Servlet name
2. The `url-pattern` tag contains a prefix (path, identifier) (the longer the name, the higher the priority)
3. The `url-pattern` tag contains a file extension

For example, if the `"/index.html"` and `"*.html"` URLs are defined and `"/index.html"` is accessed, the definition with the file name `"/index.html"` has a higher priority than the `"*.html"` file extension.

<servlet-name>

This defines the Servlet and JSP name that is used to map the request.

The name specified in the <servlet-name> tag of the <servlet> tag is described in the servlet name. If a servlet name that has not been specified is described, the web application startup will fail.

<url-pattern>

This specifies the URL pattern that performs the Servlet and JSP mapping

The URL is described as follows.

- If the URL is a single URL
The name called by the URL is described.
Example: /servlet/servlet1
- If the URL begins with a specific prefix (path, identifier)
Add "/*" to the end.
Example: /prefix/*
- If the URL has a specific file extension
This is described using "*.xxx".
Example: *.do
If a file with the specific file extension "*.xxx" is specified using this file extension, it cannot be specified together with the prefix.
Example: /path/*.do cannot be specified.
If a file that has a specific file extension is defined, the files of the entire web application will be the target.

session-config (parent tag :[web-app](#))

To use session management, a session parameter must be defined.

The session timeout time that was set can be extracted using the following method.

- The javax.servlet.http.HttpSession.getMaxInactiveInterval() method

<session-timeout>

This defines the session timeout.

The unit is minutes, and the range that can be specified is from 0 to 35791394. If the tag is omitted, 30 is set.

There is no timeout when 0 or a negative value is described.

mime-mapping (parent tag :[web-app](#))

This defines the mime type that is extracted by the servlet API.

The mime type default value is defined by the web container.

By defining this tag, a mime type that is unique to the web application can be set.

The mime type that is set in this tag has a higher priority than the default mime type.

For details on the default mime types, refer to "[3.2.2.3 Default Mime Types](#)".

If the definition is duplicated, the mime type that was specified last is used.

The mime type that was set can be extracted using the following method.

- The javax.servlet.ServletContext.getMimeType() method

<extension>

Define the file extension that defines the mime type.

<mime-type>

Define the mime type.

welcome-file-list (parent tag :[web-app](#))

Define the welcome file that is displayed when the file name is not specified in the URL.

The welcome file is active when the web application name is specified in the URL as well as when the directory name is specified as the relative path from the root directory of the web application.

If the welcome file is omitted, the default setting is used. The default set files are as follows.

- index.html

- index.htm
- index.jsp

If there is no file equivalent to the welcome file (If omitted, the default setting is used), the status code 404 (The file does not exist) or the directory list or the file list under the directory is displayed, depending on whether or not a file list is enabled.

One or more welcome files can be specified and the file is activated in accordance with the order of description.

<welcome-file>

Define the welcome file.

error-page (parent tag :[web-app](#))

Define the resource that supports the error code and the Java exception type.

If more than one is defined with the same HTTP error code or the Java exception type, the resource defined first is activated.

<error-code>

Define the HTTP error code.

Specify this when HTTP error code is defined.

<exception-type>

Define the full class name of the Java exception type.

Specify this when the exception type is defined.

<location>

Define the resource (HTML document, servlet, etc.) that is to be displayed when an error occurs. Specify this by the relative path from the web application root directory. Add '/' at the beginning. If the resource is omitted, the definition error will occur.

 Windows32/64

If the directory is described in the relative path, directories are divided by '/' not by '\\.



Note

Depending on the settings of the web browser, the error page embedded in the web browser may be displayed.

security-constraint (parent tag :[web-app](#))

Define the web application access restriction.

<web-resource-collection>

Define the web resource collection.

<web-resource-name>

Define the web resource collection name.

This is mandatory when the <web-resource-collection> tag is defined.

<url-pattern>

Define the URL pattern.

Specify the relative path from the web application root directory. Add '/' at the beginning.

<http-method>

Define the HTTP method.

Access is limited to only the defined method.

If omitted, all methods will be the target for access restriction.

<auth-constraint>

Define the security role that can access the web resource collection.

Only the user that has the specified role can access the resource collection.

If omitted, all methods will be the target for access restriction.

<role-name>

Define the security role name.

When the security role name is specified, it is mapped to users so that the user authentication is performed.

If the <role-name> tag or the value is omitted, no user can access.

<user-data-constraint>

Define the data protection attribute. Define how the data that is communicated between the client and the container is protected.

<transport-guarantee>

Define the transmission method between the client and the server.

This is mandatory when the <user-data-constraint> tag is defined.

Specify the values below.

- NONE

This means that the application does not require guaranteeing the transmission.

- INTEGRAL

This means that the transmission of data between the client and the server must be guaranteed.

- CONFIDENTIAL

This means that data antialiasing is required.

If INTEGRAL or CONFIDENTIAL is specified, this guarantees that the communication is by SSL.

login-config (parent tag :[web-app](#))

Define the procedure for the user authentication.

<auth-method>

Define the authentication procedure. Specify the values below.

- BASIC

HTTP Basic authentication

- FORM

Form base authentication

If the <auth-method> tag is omitted, "BASIC" becomes the default value. The value cannot be omitted.

<realm-name>

Define the realm name that is used by authentication.

The realm name is displayed by the window (dialog box) where the Basic authentication is performed.

If this is omitted, the default realm is selected. You must specify a realm unless you want the default realm to be used.

<form-login-config>

Define the start and end of the form base authentication.

Specify the login page or the error page used by the form based authentication.

If form based authentication is not used, the specified name is ignored.

To use form based authentication, it must be specified.

<form-login-page>

Define the login page used by the form based authentication.

The specified login page is displayed in the web browser when the form based authentication is performed.

This is mandatory when the <form-login-config> tag is defined.

If the form based authentication is specified in the <auth-method> tag, specify the login page with this tag.



Note

In the login page, the user name/password is delivered to the web container so that the following interfaces must be used.

- application name :j_security_check

- parameter name -> user name :j_username

- parameter name -> password :j_password

Examples are shown below.

```
:  
<FORM ACTION="j_security_check" METHOD="POST">  
UserName: <INPUT TYPE="text" NAME="j_username">  
Password: <INPUT TYPE="password" NAME="j_password">
```

```
<input type="submit" value="sending"></FORM>
:
```

<form-error-page>

Define the error page location that is displayed when the form based authentication fails.

This is mandatory when the <form-login-config> tag is defined.

The specified error page is displayed on the web browser when the form based authentication fails.

Notes

In the form based authentication, the session trace by the cookie is used in order to manage the authentication information. Therefore, the form based authentication function cannot be used under the following cases.

- Operation where the session ID is not set in the cookie
- Web browser does not authorize the cookie or does not support it.

After a successful form based authentication, the authentication can continue until one of the following occurs:

- The session is destroyed.
- Session is timed out.
- The web browser is closed
- The IIServer cluster is restarted.
- The web application in progress is redeployed.

security-role (parent tag :[web-app](#))

Define the security role used for the access restriction.

<role-name>

Define the security role name.

The security role name that is specified in the <role-link> tag under the <servlet>-<security-role-ref> tag in the web application deployment descriptor (web.xml) must be defined under the <role-name> tag of the <security-role> tag.

env-entry (parent tag :[web-app](#))

Define the environment entry referenced by the web application.

<env-entry-name>

Define the entry name of the environment entry

Define with the relative name from the java:comp/envcontext

<env-entry-type>

Define the full Java type of the environment entry value used by the application code.

The following Java types can be specified.

- java.lang.Boolean
- java.lang.Byte
- java.lang.Character
- java.lang.String
- java.lang.Short
- java.lang.Integer
- java.lang.Long
- java.lang.Float
- java.lang.Double

<env-entry-value>

Define the entry value of the environment entry.

The entry value is regarded as an object specified by the env-entry-type> tag.

If the entry value is different from the Java type specified by the <env-entry-type> tag , an error will occur.

If the tag is omitted, the javax.naming.NamingException or the sub class is thrown.

ejb-ref (parent tag :[web-app](#))

Define the EJB object referenced by the web application.

<ejb-ref-name>

Define the reference name (EJB reference name) of the EJB object.

Define with the relative name from the java:comp/envcontext.

Example: ejb/xxxxx

<ejb-ref-type>

Define the EJB object type.

The following types can be specified.

- Entity
- Entity Bean
- Session
- Session Bean

<home>

Specify the EJB home interface fully qualified class name.

<remote>

Define the EJB remote interface fully qualified class name.

<ejb-link>

Define the EJB name in the Java EE application package that is linked (ejb-name).

<mapped_name>

The actual JNDI name of the object that is referenced can be specified.

ejb-local-ref (parent tag :[web-app](#))

Define the local interface of the EJB object referenced by the web application.

<ejb-ref-name>

Define the EJB local object reference name (ELB local reference name).

Define by relative name from the java:comp/envcontext.

Example: ejb/xxxxx

<ejb-ref-type>

Define the EJB object type.

The types below can be specified.

- Entity
- Entity Bean
- Session
- Session Bean

<local-home>

Define the EJB local home interface fully qualified class name.

<local>

Define the EJB local interface fully qualified class name.

<ejb-link>

Define the EJB name in the Java EE application package that is linked (ejb-name).

resource-env-ref (parent tag :web-app)

Define external resource environment that is referred by the web application.

<resource-env-ref-name>

The external resource environment reference name (resource environment reference name) is defined.

Define the relative name from the java:comp/envcontext.

Example: jms/xxxxx

<resource-env-ref-type>

Define the resource type that is referenced by the external resource environment.

For type, specify the JavaClass type.

The following resources are supported as the data source type (JavaClass type).

- JMS
 - javax.jms.Topic
 - javax.jms.Queue

<mapped_name>

The actual JNDI name of the object that is referenced can be specified.

resource-ref (parent tag :web-app)

Define the external resource that is referenced by the web application.

<res-ref-name>

The external resource reference name (resource reference name) is defined.

Define the relative name from the java:comp/envcontext. The following illustrates examples.

JDBC	jdbc/xxxxx
JMS	jms/xxxxx
JavaMail	mail/xxxxx
URL	url/xxxxx

<res-type>

Define the type of the external resource.

For type, specify theJavaClass type.

The following resources are supported as the data source type (JavaClass type).

JDBC	javax.sql.DataSource
JMS	javax.jms.TopicConnectionFactory javax.jms.QueueConnectionFactory
JavaMail	javax.mail.Session
URL	java.net.URL

<res-auth>

Define whether or not the resource connection information is defined by the application component code by the program or by the web container.

For details, refer to "Authentication Information at the time of Resource Access" in the "Java EE Function Security" chapter.

Define the locations where the connection information is set for the resource.

Specify the values below.

- Application
 - Set the connection information with the application component code (web application).
- Container
 - The container specifies the connection information. The container uses the connection information set by the resource definition.

<mapped_name>

The actual JNDI name of the object that is referenced can be specified.

message-destination-ref (parent tag :web-app)

The Destination reference that is referenced in the web application is defined.

<message-destination-ref-name>

The Destination reference name (Destination reference name) is defined.

It is defined as a relative name from the java:comp/env context.

Example: jms/xxxxx

<message-destination-type>

The Destination type is defined.

The JavaClass type is specified.

<message-destination-usage>

One of the following is defined as the Destination usage:

- Consumes
This is specified when it is used for receiving.
- Produces
This is specified when it is used for sending.
- ConsumesProduces
This is specified when it is used for sending and receiving.

<message-destination-link>

The link to the message-destination tag is defined.

persistence-context-ref (parent tag :web-app)

The persistence context reference that is referenced in the web application is defined.

<description>

The explanation is defined.

<persistence-context-ref-name>

Any persistence context reference name can be specified so that the web application can identify the persistence context.

It is defined as a relative name from the java:comp/env context.

Example) persistence/xxxxx

<persistence-unit-name>

The persistence unit name that is associated with the persistence context is specified. The persistence unit name must be defined in the persistence.xml file.

persistence-unit-ref (parent tag :web-app)

The persistence unit reference that is referenced in the web application is defined.

<description>

The explanation is defined.

<persistence-unit-ref-name>

Any persistence unit reference name can be specified so that the web application can identify the persistence unit.

It is defined as a relative name from the java:comp/env context.

Example) persistence/xxxxx

<persistence-unit-name>

The persistence unit name is specified. The persistence unit name must be defined in the persistence.xml file.

message-destination (parent tag :web-app)

The Destination that is referenced in the web application is defined.

<message-destination-name>

The name that is linked from the message-destination-ref tag is defined as Destination name.

<mapped-name>

The actual JNDI name of the object that is referenced can be specified.

locale-encoding-mapping-list (parent tag :[web-app](#))

Define the support for the locale and a character code.

<locale-encoding-mapping>

Define the support for the locale and a character code.

<locale>

Specify the locale defined in ISO-639-1 and ISO-3166.

<encoding>

Specify the character code that supports the locale.

jsp-config (parent tag :[web-app](#))

Define the common value by JSP within the web application.

<taglib>

Specify the tag library when JSP incorporates its own tag.

<taglib-uri>

Define the URI of the JSP tag library used by the web application. Specify the URI that is defined in the <taglib> specified uri within the JSP file.

<taglib-location>

Define the TLD (Tag Library Description) file name of the tag library.

Specify with the relative path from the web application root directory. Add '/' at the start. If a non-existing path is described, the startup of the web application will fail.

Windows32/64

When the directory is described in the relative path the directory is divided by '/' not by '\.'

<jsp-property-group>

Specify the definition and restriction for the JSP that satisfies the URL pattern set by the <url-pattern> tag.

<url-pattern>

Specify the JSP URL pattern that applies the <jsp-property-group> tag.

<el-ignored>

Specify whether or not the Expression Language is ignored within JSP.

- true:
Expression Language is ignored (This is not an error.).
- false: (default value)
Expression Language is evaluated.

<page-encoding>

Specify the character code of the JSP file.

If the value is different from the value specified by the pageEncoding of the JSP file page directive, JSP compile will fail.

<scripting-invalid>

Specify whether the JSP script description is permitted or not.

- true:
The script description is not permitted.
If the script is described in JSP, JSP compile will fail.
- false:
The script description is permitted.
If the scripting-invalid is omitted, the script description is permitted.

<is-xml>

Specify whether or not JSP file is processed as JSP Documents (XML syntax).

- true:
JSP is processed as JSP Documents (XML syntax).
If JSP is not described as JSP Documents (XML syntax), JSP compile will fail.
- false:
JSP is processed as the regular JSP page (non-XML syntax).
In the default, if the extension is ".jspx", it is processed as the JSP Documents(XML syntax).

<include-pragma>

Specify the URI of the file included at the start of JSP. This is similar to the include directive specified at the start of JSP.

<include-coda>

Specify the URI of the file included at the end of JSP. This is similar to the include directive specified at the end of JSP.



If the <tag-class> tag of the tag library/descriptor file is changed, the JSP file that uses the tag library for the changed tag library/descriptor must be recompiled.

JSP recompile is executed when the java resource file and the class file that support the JSP file do not exist in the JSP compile result output directory.

Consequently, by deleting the java resource file and the class file that support the JSP file, the JSP recompile is executed.

For details, refer to "JSP Precompile" in the "Functionality Provided in the Java EE Application" chapter.

3.2.2.3 Default Mime Types

In the web container, the following mime type value is defined as the default.

If the mime type is unique to the web application, it can be set in the web application deployment descriptor. For settings, refer to the following setting procedure.

- [3.2.2.2 Web Application Deployment Descriptor \(web.xml\)](#)

List of the mime type Default Value

extension	mime-type
abs	audio/x-mpeg
ai	application/postscript
aif	audio/x-aiff
aifc	audio/x-aiff
aiff	audio/x-aiff
aim	application/x-aim
art	image/x-jg
asf	video/x-ms-asf
asx	video/x-ms-asf
au	audio/basic
avi	video/x-msvideo
avx	video/x-rad-screenplay
bcpio	application/x-bcpio
bin	application/octet-stream
bmp	image/bmp
body	text/html

extension	mime-type
cdf	application/x-cdf
cer	application/x-x509-ca-cert
class	application/java
cpio	application/x-cpio
csd	application/x-csh
css	text/css
dib	image/bmp
doc	application/msword
dtd	application/xml-dtd
dv	video/x-dv
dvi	application/x-dvi
eps	application/postscript
etx	text/x-setext
exe	application/octet-stream
gif	image/gif
gk	application/octet-stream
gtar	application/x-gtar
gz	application/x-gzip
hdf	application/x-hdf
hqx	application/mac-binhex40
htc	text/x-component
htm	text/html
html	text/html
ief	image/ief
jad	text/vnd.sun.j2me.app-descriptor
jar	application/java-archive
java	text/plain
jnlp	application/x-java-jnlp-file
jpe	image/jpeg
jpeg	image/jpeg
jpg	image/jpeg
js	text/javascript
kar	audio/x-midi
latex	application/x-latex
m3u	audio/x-mpegurl
mac	image/x-macpaint
man	application/x-troff-man
mathml	application/mathml+xml
me	application/x-troff-me

extension	mime-type
mid	audio/x-midi
midi	audio/x-midi
mif	application/x-mif
mov	video/quicktime
movie	video/x-sgi-movie
mp1	audio/x-mpeg
mp2	audio/x-mpeg
mp3	audio/x-mpeg
mpa	audio/x-mpeg
mpe	video/mpeg
mpeg	video/mpeg
mpega	audio/x-mpeg
mpg	video/mpeg
mpv2	video/mpeg2
ms	application/x-wais-source
nc	application/x-netcdf
oda	application/oda
ogg	application/ogg
pbm	image/x-portable-bitmap
pct	image/pict
pdf	application/pdf
pgm	image/x-portable-graymap
pic	image/pict
pict	image/pict
pls	audio/x-scpls
png	image/png
pnm	image/x-portable-anymap
pnt	image/x-macpaint
ppm	image/x-portable-pixmap
ppt	application/powerpoint
ps	application/postscript
psd	image/x-photoshop
qt	video/quicktime
qti	image/x-quicktime
qtif	image/x-quicktime
ras	image/x-cmu-raster
rdf	application/rdf+xml
rgb	image/x-rgb
rm	application/vnd.rn-realmedia

extension	mime-type
roff	application/x-troff
rtf	application/rtf
rtx	text/richtext
sh	application/x-sh
shar	application/x-shar
shtml	text/x-server-parsed-html
smf	audio/x-midi
sit	application/x-stuffit
snd	audio/basic
src	application/x-wais-source
sv4cpio	application/x-sv4cpio
sv4crc	application/x-sv4crc
svg	image/svg+xml
svgz	image/svg+xml
swf	application/x-shockwave-flash
t	application/x-troff
tar	application/x-tar
tcl	application/x-tcl
tex	application/x-tex
texi	application/x-texinfo
texinfo	application/x-texinfo
tif	image/tiff
tiff	image/tiff
tr	application/x-troff
tsv	text/tab-separated-values
txt	text/plain
ulw	audio/basic
ustar	application/x-ustar
vsd	application/x-visio
vxml	application/voicexml+xml
wav	audio/x-wav
wbmp	image/vnd.wap.wbmp
wml	text/vnd.wap.wml
wmlc	application/vnd.wap.wmlc
wmls	text/vnd.wap.wmls
wmlscriptc	application/vnd.wap.wmlscriptc
wrl	x-world/x-vrml
xbm	image/x-xbitmap
xht	application/xhtml+xml

extension	mime-type
xhtml	application/xhtml+xml
xls	application/vnd.ms-excel
xml	application/xml
xpm	image/x-xpixmap
xsl	application/xml
xslt	application/xslt+xml
xul	application/vnd.mozilla.xul+xml
xwd	image/x-xwindowdump
vsd	application/x-visio
Z	application/x-compress
z	application/x-compress
zip	application/zip

3.2.3 Interstage Deployment Descriptor

In addition to the standard Java EE deployment descriptor file this product can also use the product specific definition file. This definition file is called the Interstage deployment descriptor file. A list of Interstage deployment descriptor files is shown below.

File name	Description
sun-application.xml	Definition of the Java EE application (EAR file) can be specified.
sun-web.xml	Definition of the web application (WAR file) can be specified.
sun-ejb-jar.xml	Definition of the EJB application (EJB JAR file) can be specified.
sun-cmp-mappings.xml	Definition of the EJB application CMP can be specified.
sun-application-client.xml	Definition of the Java EE application client (JAR file) can be specified.
sun-acc.xml	Definition of the Application client container can be specified.

The following shows the contents of each definition file.

3.2.3.1 Interstage Application Deployment Descriptor (sun-application.xml)

Description Format

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE sun-application PUBLIC
  "-//Sun Microsystems, Inc.//DTD Application Server 9.0 Java EE Application 5.0//EN"
  "http://www.sun.com/software/appserver/dtds/ sun-application_5_0-0.dtd ">
<sun-application>
  <pass-by-reference>...</pass-by-reference>
  <unique-id>...</unique-id>
  <security-role-mapping>
    <role-name>...</role-name>
    <principal-name>...</principal-name> or
    <group-name>...</group-name>
  </security-role-mapping>
</sun-application>
```

List of Tags

The list of Interstage application deployment descriptor tags is shown below. For details on the method that is used to describe the list, refer to "3.2.3.7 Tag and Description of the Interstage Deployment Descriptor".

Tag name	Overview
sun-application	Start and end of the deployment descriptor
pass-by-reference?	Method that is used to receive and deliver the argument when the method is called
unique-id?	System ID
security-role-mapping*	Security role mapping
role-name	Security role of the deployment descriptor
principal-name+ (*1)	User ID defined in the realm
group-name+ (*1)	Group name defined in the realm

*1) One or more can be specified more than once for either principal-name or group-name, or both. There are no restrictions on the order in which these can be specified either.

3.2.3.2 Interstage Web Application Deployment Descriptor (sun-web.xml)

Description Format

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE sun-web-app PUBLIC
  "-//Sun Microsystems, Inc.//DTD Application Server 9.0 Servlet 2.5//EN"
  "http://www.sun.com/software/appserver/dtds/sun-web-app_2_5-0.dtd">
<sun-web-app>
  <security-role-mapping>
    <role-name>...</role-name>
    <principal-name>...</principal-name> or
    <group-name>...</group-name>
  </security-role-mapping>
  <servlet>
    <servlet-name>...</servlet-name>
    <principal-name>...</principal-name>
  </servlet>
  <session-config>
    <session-manager persistence-type="..." /> (with attributes)
    <session-properties>
      <property name="..." value="..."> (with attributes)
        <description>...</description>
      </property>
    </session-properties>
    <cookie-properties>
      <property name="..." value="..."> (with attributes)
        <description>...</description>
      </property>
    </cookie-properties>
  </session-config>
  <ejb-ref>
    <ejb-ref-name>...</ejb-ref-name>
    <jade-name>...</jndi-name>
  </ejb-ref>
  <resource-ref>
    <res-ref-name>...</res-ref-name>
    <jndi-name>...</jndi-name>
    <default-resource-principal>
      <name>...</name>
      <password>...</password>
    </default-resource-principal>
  </resource-ref>
  <resource-env-ref>
    <resource-env-ref-name>...</resource-env-ref-name>
```

```

    <jndi-name>...</jndi-name>
</resource-env-ref>
<message-destination-ref>
    <message-destination-ref-name>...</message-destination-ref-name>
    <jndi-name>...</jndi-name>
</message-destination-ref>
<class-loader delegate="..." />
<jsp-config>
    <property name="..." value="..."> (with attributes)
        <description>...</description>
    </property>
</jsp-config>
<parameter-encoding default-charset="..." />
<property name="..." value="..."> (with attributes)
    <description>...</description>
</property>
<message-destination>
    <message-destination-name>...</message-destination-name>
    <jndi-name>...</jndi-name>
</message-destination>
</sun-web-app>

```

List of Tags

The tag list of the Interstage web application deployment descriptor is described below. For the description of the list and tag, refer to "3.2.3.7 Tag and Description of the Interstage Deployment Descriptor".

Tag name	Overview
sun-web-app	Start and end of the deployment descriptor
security-role-mapping*	Security role mapping
role-name	Security role of the deployment descriptor
principal-name+ (*1)	User ID defined in the realm
group-name+ (*1)	Group name defined in the realm
servlet*	Definition of the servlet or JSP operation
servlet-name	servlet or JSP name
principal-name?	User name that supports the security role
session-config?	Definition of the session control within the web application
session-manager?	Definition of the session manager that manages sessions in the web application
session-properties?	Common value to control the session within the web application
property*	Property
description?	Description
cookie-properties?	Common value that controls the cookie within the web application
property*	Property
description?	Description
ejb-ref*	EJB application JNDI name that supports the reference name
ejb-ref-name	EJB object reference name
jndi-name	EJB application JNDI name
resource-ref*	Resource JNDI name that supports the reference name
res-ref-name	Resource reference name

Tag name	Overview
jndi-name	Resource JNDI name
default-resource-principal?	Definition of the default user
name	User name
password	Password
resource-env-ref*	JMS JNDI name that supports the reference name
resource-env-ref-name	JMS reference name
jndi-name	JMS JNDI name
message-destination-ref*	JNDI name of the JMS Destination object that supports the reference name
message-destination-ref-name	JMS Destination object reference name
jndi-name	JMS Destination object JNDI name
class-loader?	Definition of the class loader
jsp-config?	Definition of JSP
property*	Property
description?	Description
parameter-encoding?	Encoding
Property (with attributes)*	Property
description?	Description
message-destination*	JNDI name of the JMS Destination object that supports the reference name
message-destination-name	JMS Destination object reference name
jndi-name	JNDI name of the JMS Destination object

*1) One or more can be specified more than once for either principal-name or group-name, or both. There are no restrictions on the order in which these can be specified either.

3.2.3.3 Interstage EJB Application Deployment Descriptor (sun-ejb-jar.xml)

Description Format

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE sun-ejb-jar PUBLIC
  "-//Sun Microsystems, Inc.//DTD Application Server 9.0 EJB 3.0//EN"
  "http://www.sun.com/software/appserver/dtds/sun-ejb-jar_3_0-0.dtd">
<sun-ejb-jar>
  <security-role-mapping>
    <role-name>...</role-name>
    <principal-name>...</principal-name> or
    <group-name>...</group-name>
  </security-role-mapping>
  <enterprise-beans>
    <unique-id>...</unique-id>
    <ejb>
      <ejb-name>...</ejb-name>
      <jndi-name>...</jndi-name>
      <ejb-ref>
        <ejb-ref-name>...</ejb-ref-name>
        <jndi-name>...</jndi-name>
      </ejb-ref>
      <resource-ref>
```

```

    <res-ref-name>...</res-ref-name>
    <jndi-name>...</jndi-name>
    <default-resource-principal>
      <name>...</name>
      <password>...</password>
    </default-resource-principal>
  </resource-ref>
  <resource-env-ref>
    <resource-env-ref-name>...</resource-env-ref-name>
    <jndi-name>...</jndi-name>
  </resource-env-ref>
  <message-destination-ref>
    <message-destination-ref-name>...</message-destination-ref-name>
    <jndi-name>...</jndi-name>
  </message-destination-ref>
  <pass-by-reference>...</pass-by-reference>
  <cmp>
    <one-one-finders>
      <finder>
        <method-name>...</method-name>
        <query-params>...</query-params>
        <query-ordering>...</query-ordering>
        <query-filter>...</query-filter>
      </finder>
    </one-one-finders>
  </cmp>
  <principal>
    <name>...</name>
  </principal>
  <mdb-connection-factory>
    <jndi-name>...</jndi-name>
  </mdb-connection-factory>
  <jms-durable-subscription-name>...</jms-durable-subscription-name>
  <ior-security-config>
    <transport-config>
      <integrity>...</integrity>
      <confidentiality>...</confidentiality>
      <establish-trust-in-target>...</establish-trust-in-target>
      <establish-trust-in-client>...</establish-trust-in-client>
    </transport-config>
    <as-context>
      <auth-method>...</auth-method>
      <realm>...</realm>
      <required>...</required>
    </as-context>
    <sas-context>
      <caller-propagation>...</caller-propagation>
    </sas-context>
  </ior-security-config>
  <cmt-timeout-in-seconds>...</cmt-timeout-in-seconds>
  <use-thread-pool-id>...</use-thread-pool-id>
  <bean-pool>
    <steady-pool-size>...</steady-pool-size>
    <resize-quantity>...</resize-quantity>
    <max-pool-size>...</max-pool-size>
    <pool-idle-timeout-in-seconds>...</pool-idle-timeout-in-seconds>
  </bean-pool>
  <bean-cache>
    <max-cache-size>...</max-cache-size>
    <resize-quantity>...</resize-quantity>
    <cache-idle-timeout-in-seconds>...</cache-idle-timeout-in-seconds>
    <removal-timeout-in-seconds>...</removal-timeout-in-seconds>
    <victim-selection-policy>...</victim-selection-policy>
  </bean-cache>

```

```

</bean-cache>
<mdb-resource-adapter>
  <resource-adapter-mid>...</resource-adapter-mid>
  <activation-config>
    <description>...</description>
    <activation-config-property>
      <activation-config-property-name>...</activation-config-property-name>
      <activation-config-property-value>...</activation-config-property-value>
    </activation-config-property>
  </activation-config>
</mdb-resource-adapter>
<webservice-endpoint>
  <port-component-name>...</port-component-name>
  <login-config>
    <auth-method>...</auth-method>
  </login-config>
</webservice-endpoint>
</ejb>
<cmp-resource>
  <jndi-name>...</jndi-name>
  <default-resource-principal>
    <name>...</name>
    <password>...</password>
  </default-resource-principal>
</cmp-resource>
<message-destination>
  <message-destination-name>...</message-destination-name>
  <jndi-name>...</jndi-name>
</message-destination>
</enterprise-beans>
</sun-ejb-jar>

```

List of Tags

The tag list of Interstage EJB application deployment descriptor is described below. For the description of the list or the description of the tag, refer to "[3.2.3.7 Tag and Description of the Interstage Deployment Descriptor](#)".

Tag name	Overview
sun-ejb-jar	Start and end of the deployment descriptor
security-role-mapping*	Security role mapping
role-name	Security role of the deployment descriptor
principal-name+ (*1)	User ID defined in the realm
group-name+ (*1)	Group name defined realm
enterprise-beans	Definition of the application define din the EJB JAR file
unique-id?	System ID
ejb*	Definition of the EJB application
ejb-name	EJB application Enterprise Bean name
jndi-name?	EJB application name or Destination name
ejb-ref*	EJB application JNDI name that supports the reference name
ejb-ref-name	EJB object reference name
jndi-name	EJB application JNDI name
resource-ref*	Resource JNDI name that supports the reference name
res-ref-name	Resource reference name

Tag name	Overview
jndi-name	Resource JNDI name
default-resource-principal?	Definition of the default user
name	User name
password	Password
resource-env-ref*	JMS JNDI name that supports the reference name
resource-env-ref-name	JMS reference name
jndi-name	JMS JNDI name
message-destination-ref*	JNDI name of the JMS Destination object that supports the reference name
message-destination-ref-name	JMS Destination object reference name
jndi-name	JMS Destination object JNDI name
pass-by-reference?	Method to receive and deliver the argument when the method is called
cmp?	Definition on the CMP entity bean
one-one-finders?	Definition on the EJB 1.1 CMP entity bean
finder+	Definition of query for each finder method
method-name	Method name linked to the finder method
query-params?	Input parameter name and type
query-filter?	Conditions applied to each object
query-ordering?	Specify the sort order of the results that are returned by the query
principal?	User name that supports the security role
name	User name
mdb-connection-factory?	ConnectionFactory name linked to the message-driven bean
jndi-name	JNDI name
jms-durable-subscription-name?	Subscriber identification name
ior-security-config?	Integrity and confidentiality of IOP communication authentication and communication data
transport-config?	Security level of the transport layer
integrity	Integrity of the communication data
confidentiality	Confidentiality of the messages
establish-trust-in-target	EJB container authentication from the client is possible or not.
establish-trust-in-client	Client authentication from the EJB container is possible or not.
as-context?	Authentication information that the client delivers to the EJB container.
auth-method	Authentication procedure
realm	Realm used by the client authentication
required	Required user name and password
sas-context?	Identifying the information delivered by the client.
caller-propagation	Support for information identification delivered by the client.
cmt-timeout-in-seconds?	Transaction timeout value

Tag name	Overview
use-thread-pool-id?	Spread pool name used when the remote is called.
bean-pool?	Pool definition
steady-pool-size?	Minimum number of the Bean instance
resize-quantity?	Number of instances that decrease or increases
max-pool-size?	Maximum number of instances
pool-idle-timeout-in-seconds?	Maximum allowable idle timeout of the instance
bean-cache?	Cache definition
max-cache-size?	Maximum cache size
resize-quantity?	Resize the cache quantity
cache-idle-timeout-in-seconds?	Maximum time for the Bean instance that is cached
removal-timeout-in-seconds?	Non-communication timeout
victim-selection-policy?	Policy to delete the Bean instance
mdb-resource-adapter?	Message-driven bean resource adopter type definition
resource-adapter-mid	Resource adopter name
activation-config?	Definition on activation
description?	Description
activation-config-property+	Activation configuration property
activation-config-property-name	Activation configuration property name
activation-config-property-value	Activation configuration property value
webservice-endpoint?	Definition for making the web service public
port-component-name	Web service name
login-config?	User authentication method
auth-method	Authentication method
realm?	Realm used in authentication
cmp-resource?	CMP entity bean database information
jndi-name	JNDI name in the JDBC resource name
default-resource-principal?	Definition of the default user
name	User name
password	Password
message-destination*	JNDI name of the JMS Destination object that supports the reference name
message-destination-name	JMS Destination object reference name
jndi-name	JMS Destination object JNDI name

*1) One or more can be specified more than once for either principal-name or group-name, or both. There are no restrictions on the order in which these can be specified either.

3.2.3.4 Interstage CMP Mappings Deployment Descriptor (sun-cmp-mappings.xml)

Description Format

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE sun-cmp-mappings PUBLIC
```

```

"-//Sun Microsystems, Inc.//DTD Sun Java Application Server 8.1 OR Mapping 1.2 //EN"
"http://www.sun.com/software/sunone/appserver/dtds/sun-cmp-mapping_1_2.dtd">
<sun-cmp-mappings>
  <sun-cmp-mapping>
    <schema>...</schema>
    <entity-mapping>
      <ejb-name>...</ejb-name>
      <table-name>...</table-name>
      <consistency>
        <lock-when-loaded/>
      </consistency>
      <cmp-field-mapping>
        <field-name>...</field-name>
        <column-name>...</column-name>
      </cmp-field-mapping>
      <cmr-field-mapping>
        <cmr-field-name>...</cmr-field-name>
        <column-pair>
          <column-name>...</column-name>
          <column-name>...</column-name>
        </column-pair>
      </cmr-field-mapping>
    </entity-mapping>
  </sun-cmp-mapping>
</sun-cmp-mappings>

```

List of Tags

The tag list of the Interstage CMP Mappings deployment descriptor is described below. For the description of the list or the description of the tag, refer to "[3.2.3.7 Tag and Description of the Interstage Deployment Descriptor](#)".

Tag name	Overview
sun-cmp-mappings	Start and end of the deployment descriptor
sun-cmp-mapping+	CMP entity bean mapping information
schema	Database schema information
entity-mapping+	Mapping of the database and CMP entity bean
ejb-name	Enterprise bean name that matches with CMP entity bean
table-name	Database table name
consistency?	Consistency guarantee definition
lock-when-loaded	Definition for lock at the time of the search
cmp-field-mapping+	Definition of CMP field
field-name	CMP field name
column-name+	Table column name
cmr-field-mapping*	Definition of CMR field
cmr-field-name	CMR field name
column-pair+	Definition that supports the database column name
column-name	Table column name



Note

sun-cmp-mapping.xml table name and column name notation

In CMP, when the entity bean is mapped to the database table, it uses the information in the sun-cmp-mapping.xml file contained in the entity bean application. Depending on the database, conversion to uppercase or lowercase will occur automatically in the string. For this reason, follow the database specification regarding case-sensitivity issues for table names and column names defined in sum-cmp-mappings.xml.

For example, in Oracle, identifiers not enclosed in double quotes are converted to uppercase automatically. At this time, uppercase should also be used to specify the sun-cmp-mapping.xml table names and column names.

In PowerGres Plus, identifiers not enclosed in double quotes are converted to lowercase automatically. At this time, lowercase should also be used to specify the sun-cmp-mapping.xml table names and column names.



3.2.3.5 Interstage Application Client Deployment Descriptor (sun-application-client.xml)

Description Format

```
<!DOCTYPE sun-application-client PUBLIC
"-//Sun Microsystems, Inc.//DTD Application Server 9.0 Application Client 5.0//EN"
"http://www.sun.com/software/appserver/dtds/sun-application-client_5_0-0.dtd">
<sun-application-client>
  <ejb-ref>
    <ejb-ref-name>...</ejb-ref-name>
    <jndi-name>...</jndi-name>
  </ejb-ref>
  <resource-ref>
    <res-ref-name>...</res-ref-name>
    <jndi-name>...</jndi-name>
    <default-resource-principal>
      <name>...</name>
      <password>...</password>
    </default-resource-principal>
  </resource-ref>
  <resource-env-ref>
    <resource-env-ref-name>...</resource-env-ref-name>
    <jndi-name>...</jndi-name>
  </resource-env-ref>
  <message-destination>
    <message-destination-name>...</message-destination-name>
    <jndi-name>...</jndi-name>
  </message-destination>
  <message-destination-ref>
    <message-destination-ref-name>...</message-destination-ref-name>
    <jndi-name>...</jndi-name>
  </message-destination-ref>
</sun-application-client>
```

List of Tags

The tag list of the Interstage application client deployment descriptor is described below. For the description of the list or the description of the tag, refer to "3.2.3.7 Tag and Description of the Interstage Deployment Descriptor".

Tag name	Overview
sun-application-client	Start and end of the deployment descriptor
ejb-ref*	JNDI name of the EJB application that supports the reference name
ejb-ref-name	EJB object reference name
jndi-name	EJB application JNDI name
resource-ref*	Resource JNDI name that supports the reference name
res-ref-name	Resource reference name
jndi-name	Resource JNDI name

Tag name	Overview
default-resource-principal?	Definition of the default user
Name	User name
Password	Password
resource-env-ref*	JMS JNDI name that supports the reference name
resource-env-ref-name	JMS reference name
jndi-name	JMS JNDI name
message-destination*	JNDI name of the JMS Destination object that supports the reference name
message-destination-name	JMS Destination object reference name
jndi-name	JMS Destination object JNDI name
message-destination-ref*	JNDI name of the JMS Destination object that supports the reference name
message-destination-ref-name	JMS Destination object reference name
jndi-name	JMS Destination object JNDI name

3.2.3.6 Interstage ACC Deployment Descriptor (sun-acc.xml)

Description Format

```
<!DOCTYPE client-container PUBLIC
"-//Sun Microsystems Inc.//DTD Application Server 8.0 Application Client Container//EN"
"http://www.sun.com/software/appserver/dtds/sun-application-client-container_1_2.dtd">
<client-container>
  <target-server name="..." address="..." port="..." />
  <log-service>
    <property name="..." value="..." />
  </log-service>
  <property name="..." value="..." />
</client-container>
```

List of Tags

The tag list of the Interstage ACC deployment descriptor is described below. For the description of the list or the description of the tag, refer to "3.2.3.7 Tag and Description of the Interstage Deployment Descriptor".

Tag name	Overview
client-container	Start and end of the deployment descriptor
target-server+	Definition of the IIOP listener that accesses the server
log-service?	Log file
property (with attributes)*	Property
property (with attributes)*	Property



Note

Only the three properties below are supported in sun-acc.xml:

Property name	Values that can be specified
com.sun.appserv.iiop.loadbalancingpolicy	ic-based,disable

Property name	Values that can be specified
com.sun.appserv.iiop.endpoints	(IP address):(port), ...
com.fujitsu.appserv.jndi.remote.object.cache	true,false

3.2.3.7 Tag and Description of the Interstage Deployment Descriptor

List of Tags

This explains how to view the tag list of each Interstage deployment descriptor and the notes.

How to Interpret the List of Tags

The symbols in the list of tags are shown below.

Symbol	Meaning
?	There is no need to define the tag. Alternatively, only one tag can be defined.
*	There is no need to define the tag. Alternatively, multiple tags can be defined.
+	One or more tags must be defined.

Notes

This explains the notes on Interstage deployment descriptor.

- Definitions not described in the manual are not supported.
- `<?xml...>` and `<!DOCTYPE...>` at the start are used to describe the XML declaration and DTD and must therefore be described at the start of the deployment descriptor file.
- The order of description for each tag must follow the order described above.
- When a tag is omitted, the tag definition is invalid, or an error occurs.
- Upper and lower case are treated as being different.
- Please note that if anything not described in the manual is defined, IJServer cluster may start without an error message.

Explanation about the Tags

bean-cache (parent tag :[ejb](#))

Definition of the cache of the Stateful Session Bean and Entity Bean.

The cache definition of the EJB container can be overwritten and specified for each Bean. The behavior when illegal values are specified is not guaranteed. (Note).

The settings range for each definition value and the magnitude relation between items is the same as for the EJB container Enterprise Bean instance caching definitions, so refer to "EJB container definition items" in the "List of Definition Items" chapter.

For the cache function, refer to "Enterprise Bean Instance Caching" in the "Java EE Function Tuning" chapter.

<max-cache-size>

This is the number to judge whether the cached Bean instance is subject to passivation.

The default value is 512. If 0 is set, the cache size will become unlimited.

<resize-quantity>

If the Bean instance is passivated, this is the number of instances passivated and destroyed from the cache.

The resize is subject to restriction by the minimum value of the cache. The default value is 32.

<cache-idle-timeout-in-seconds>

This is the monitoring time (Unit is second) that judges whether the cached Bean instance is subject to passivation. It monitors the cache at the specified interval. The Bean instance that is idle after the specified time elapses will become the target for passivation. If the instance of the target passivation exceeds 8, the Bean instance is passivated to the file system. If 0 is set, the cache idle timeout

does not function.

The default value is 600 seconds (10 minutes).

<removal-timeout-in-seconds>

This is the maximum time (Unit is seconds) that the passivated Bean instance can exist in the file system. If a business method is not executed for the Bean instance even after the time is exceeded, the EJB container deletes the instance from the system file. If the value less than the cache idle timeout is specified, the Bean instance is deleted after passivation. If 0 is set, the delete timeout does not function. The default value is 400 seconds (90 minutes).

<victim-selection-policy>

Based on the set policy, the container decides whether or not the stateful session bean is deleted. The policy that the container deletes Bean instance from the cache is specified by the values below.

- NRU: Not Recently Used
- FIFO: First in and First out
- LRU: Frequency of use is the lowest.

According to the NRU (Not Recently Used) policy, old Bean instances in the cache that have not been accessed recently are deleted in order of priority. FIFO(First In, First Out) policy deletes the oldest Bean with the cache. LRU(Least Recently Used) policy deletes the Bean that is least accessed recently.

The default value is 'NRU'. Entity Beans are always deleted using the FIFO policy.



Note

If an illegal value was specified, the behavior is as follows:

- When a negative value is specified:
 - If -1 was entered, the EJB container cache definition value will be valid.
 - If a value except -1 was specified, the behavior will be the same as for when 0 is specified.
- When a value larger than max-cache-size is specified for resize-quantity:
 - passivate will be used for instances where the timing is unexpected.
- If an illegal value not shown above is specified when the character string is entered:
 - The value that was specified will be invalid, and the EJB container cache definition value will be valid.

bean-pool (parent tag :[ejb](#))

Definition of pool for the stateless session bean, message-driven bean and entity bean.

If the EJB container pool is overwritten and each Bean is specified, the following definition can be used. The behavior when illegal values are specified is not guaranteed. (Note).

The settings range for each definition value and the magnitude relation between items is the same as for the EJB container Enterprise Bean instance pooling definitions (refer to "EJB Container Definition Items" or "Message-driven Bean Default Pool Definition Items", both in the "List of Definition Items" chapter).

For information regarding the pooling function, refer to "Enterprise Bean Instance Pooling" in the "Java EE Function Tuning" chapter.

<steady-pool-size>

This is the number of Bean instances that is generated when accessing the EJB application or monitoring the idle timeout processing. If the number of instances that exist in the pool becomes smaller than the specified value because of process requests, the EJB container adds Bean instances until the value reaches the value specified by generating the pool size according to the resize-quantity. The default value is 0.

<resize-quantity>

This specifies the number of instances that can be destroyed or added at one time if the container adjusts the number of instances in the pool.

It can be specified by the range of 0 - MAX_INTEGER (in Message-driven Bean, the range is 1-MAX_INTEGER), however it is restricted by the maximum and minimum pool size.

If 0 is set, or 0 is set in the minimum pool size, this is not applied. If not applied, one instance is generated at each time.

The default value is 8.
If 0 is set in Message-driven Bean, the default value is set.

<max-pool-size>

This specifies the maximum number of instances retained in the pool. It is specified by the range of 0 - MAX_INTEGER (In the case of message-driven bean, the range is 1 - MAX_INTEGER).
The default value is 32. If 0 is set, the pool size is unlimited, however in Message-driven Bean the default value is set.

<pool-idle-timeout-in-seconds>

This specifies the maximum allowable idle time of the instance in the pool. The EJB container monitors the pool at the interval of the set value, and deletes the Bean instance that has been in the idle state longer than the specified time from the pool. If the pool size becomes smaller than the minimum pool size, a new instance is added in accordance with the resize-quantity of the pool.
The default value is 600 seconds (10 minutes). If 0 is set, this is not monitored, however in Message-driven Bean the default value is set.



If an illegal value was specified, the behavior is as follows:

- When a negative value is specified:
 - If -1 was entered, the EJB container pool definition value will be valid.
 - If a value except -1 was specified, the behavior will be the same as for when 0 is specified.
- If an illegal value not shown above is specified when the character string is entered:
 - The value that was specified will be invalid, and the EJB container pool definition value will be valid.

class-loader (parent tag :[sun-web-app](#))

Define the common value that controls the class loader that loads the web application.

The specifiable attributes are shown below.

Attribute name	Default value	Meaning
Delegate	true	Specify the web class loader delegate model. For details, refer to "Changing the Transfer Model of Web Class Loader" in the "Functionality Provided in the Java EE Application" chapter. <ul style="list-style-type: none">- true: Transfers first to the parent class loader.- false: Transfers later to the parent class loader.

client-container

Defines the start and end of the Interstage ACC deployment descriptor.

cmp (parent tag :[ejb](#))

Definition of the CMP entity bean application.

<one-one-finders>

Definition of the EJB 1.1 CMP entity bean.

<finder>

Defines the query for each finder method of the EJB 1.1 CMP entity bean.

<method-name>

Specify the method name linked to the finder method defined in the Home interface.

<query-params>

Specify one query or multiple queries of the input parameter name and type. Java language parameter is described in syntax.

<query-filter>

Specify the conditions that are applied to each object that is returned by the query. This corresponds to the WHERE phrase.

<query-ordering>

The results that are returned by the query are sorted. This corresponds to the SQL ORDER BY clause.

cmp-field-mapping (parent tag :entity-mapping)

Specifies the CMP field. Define one <cmp-field-mapping> tag for each cmp-field defined in the ejb-jar.xml file.

<field-name>

Specify the CMP field name that matches with CMP field (<field-name>) defined in the ejb-jar.xml file.

<column-name>

Specify the column name of the table that is linked to the CMP field.

cmp-resource (parent tag :enterprise-beans)

Define the database of information of the CMP entity bean defined in the EJB application deployment descriptor (ejb-jar.xml).

<jndi-name>

Specify the JNDI name for JDBC resource name.

cmr-field-mapping (parent tag :entity-mapping)

Define the CMR field related to the EJB application that has a cross reference. This is omitted in the case of the EJB 1.1CMP entity bean.

Define one cmr-field-mapping per cmr-field defined in the ejb-jar.xml file.

The relationship between the entity beans is established on the basis that the table column has the same value as another table column. The Join table is used for multiple to multiple relationship. The Join table can be used for 1:1 and 1: multiple, however, the external key column is generally used.

The mapping method that is used if the external key column is used when the Join table is used in the relation definition, is shown below.

When the Join table is used

The Join table has the column that stores the primary key of both entity beans that have the relationship. There is a line for each Join table for each entity bean object relationship. If the Entity bean object is traced back, a primary key of another Entity bean is obtained from the line. If the relationship is created, updated and deleted, the EJB container adds and deletes the line. If the Join table is used, the <column-pair> must be defined for the primary key column of both entity beans.

This shows an example of the Join table mapping of the multiple to multiple relationship (two-way direction) between entity beans.

In the following example, the EMPLOYEEMEETING table has been set as the Join table. In the EMPLOYEEMEETING table, there are EMPLOYEE_ID and MEETING_NO columns, and the same values as the primary keys for each of the EMPLOYEE and MEETING tables are stored.

```
<entity-mapping>
  <ejb-name>Employee</ejb-name>
  <table-name>EMPLOYEE</table-name>
  <cmp-field-mapping>
    <field-name>name</field-name>
    <column-name>NAME</column-name>
  </cmp-field-mapping>
  <cmp-field-mapping>
    <field-name>id</field-name>
    <column-name>ID</column-name>
  </cmp-field-mapping>
  <cmr-field-mapping>
    <cmr-field-name>meeting</cmr-field-name>
    <column-pair>
      <column-name>ID</column-name>
      <column-name>EMPLOYEEMEETING.EMPLOYEE_ID</column-name>
    </column-pair>
    <column-pair>
      <column-name>EMPLOYEEMEETING.MEETING_NO</column-name>
      <column-name>MEETING.NO</column-name>
    </column-pair>
  </cmr-field-mapping>
```

```

</entity-mapping>
<entity-mapping>
  <ejb-name>Meeting</ejb-name>
  <table-name>MEETING</table-name>
  <cmp-field-mapping>
    <field-name>no</field-name>
    <column-name>NO</column-name>
  </cmp-field-mapping>
  <cmp-field-mapping>
    <field-name>room</field-name>
    <column-name>ROOM</column-name>
  </cmp-field-mapping>
  <cmr-field-mapping>
    <cmr-field-name>employee</cmr-field-name>
    <column-pair>
      <column-name>NO</column-name>
      <column-name>EMPLOYEEMEETING.MEETING_NO</column-name>
    </column-pair>
    <column-pair>
      <column-name>EMPLOYEEMEETING.EMPLOYEE_ID</column-name>
      <column-name>EMPLOYEE.ID</column-name>
    </column-pair>
  </cmr-field-mapping>
</entity-mapping>

```

When the external key column is used

The external key column is the column that has been added in order to store another entity bean primary key to the table mapped in the entity bean. If the relationship is created between entity beans, the EJB container stores the primary key of another entity bean in the external key column line that supports the entity bean object. If the relationship is deleted, NULL is stored.

Define the <column-pair> for each primary key column if the external key column is used.

This example shows the external key column mapping of 1 to multiple relationships (two-way directions) between entity beans.

```

<entity-mapping>
  <ejb-name>Customer</ejb-name>
  <table-name>CUSTOMER</table-name>
  <cmp-field-mapping>
    <field-name>id</field-name>
    <column-name>ID</column-name>
  </cmp-field-mapping>
  <cmp-field-mapping>
    <field-name>name</field-name>
    <column-name>NAME</column-name>
  </cmp-field-mapping>
  <cmr-field-mapping>
    <cmr-field-name>cards</cmr-field-name>
    <column-pair>
      <column-name>CUSTOMER.ID</column-name>
      <column-name>CREDITCARD.CUSTOMER_ID</column-name>
    </column-pair>
  </cmr-field-mapping>
</entity-mapping>
<entity-mapping>
  <ejb-name>Creditcard</ejb-name>
  <table-name>CREDITCARD</table-name>
  <cmp-field-mapping>
    <field-name>number</field-name>
    <column-name>NO</column-name>
  </cmp-field-mapping>
  <cmp-field-mapping>
    <field-name>name</field-name>

```

```

        <column-name>NAME</column-name>
    </cmp-field-mapping>
</cmp-field-mapping>
    <field-name>expires</field-name>
    <column-name>EXPIRES</column-name>
</cmp-field-mapping>
<cmr-field-mapping>
    <cmr-field-name>cardholder</cmr-field-name>
    <column-pair>
        <column-name>CUSTOMER.ID</column-name>
        <column-name>CREDITCARD.CUSTOMER_ID</column-name>
    </column-pair>
</cmr-field-mapping>
</entity-mapping>

```

<cmr-field-name>

Specify the CMR field name that matches with CMR field (<cmr-field-name>) defined in the ejb-jar.xml file.

<column-pair>

Specify the linked database column name in pair.

<column-name>

Specify the table column name.

If the table column different from the table specified in the <table-name> is defined, the table name and the column name must be divided by a full stop as in "Table name.Column name".

cmt-timeout-in-seconds (parent tag :[ejb](#))

If the container performs transaction control, the transaction timeout value is specified in seconds.

If omitted or 0 is specified, the timeout value set in the transaction service is used.

If a transaction timeout occurs, the IJServer cluster changes the transaction status to "MarkedRollback" (Note). Transactions that are changed to MarkedRollback are rolled back automatically when the EJB application method processing is complete.

Note: For details on the transaction status, refer to "Transaction Monitoring and Freeze Functionality" in the "Functionality Provided in the Java EE Application" chapter.

consistency (parent tag : [entity-mapping](#))

Defines the feature that guarantees consistency.

cookie-properties (parent tag : [session-config](#))

Define the common values that control session cookies used for the session trace within the web application using the <[property](#)> tag.

This shows the specifiable properties.

Property name	Default value	Meaning
cookieSecure	dynamic	<p>Specify whether or not the secure attribute is always added to the session cookie that is used for session trace.</p> <p>When SSL accelerator is used, the secure attribute is not automatically added to the session cookie that is used for session trace. However, the secure attribute can always be added when this function is activated.</p> <ul style="list-style-type: none"> - true: Always add - dynamic: Depends on the schema. Do not add in the case of http, only in case of https. <p>Note) If a value not shown above was set, WEB0123 is output and either execution of the application will fail, or the secure attribute will no longer always be added to the cookie.</p>

Property name	Default value	Meaning
cookieMaxAgeSeconds	-1	Specify the period (in seconds) for the saving of sessions on the web browser. <ul style="list-style-type: none"> - 1 to 2147483647: This will be the period for the saving of sessions on the web browser. - 0: Session tracking using cookies will be disabled. - Other: Sessions on the web browser will not be saved.
cookieHttpOnly	false	Specify whether to add the HttpOnly attribute to the session cookie. <ul style="list-style-type: none"> - true: The HttpOnly attribute is added - false: The HttpOnly attribute is not added

default-resource-principal (parent tag : [resource-ref](#), [cmp-resource](#))

Define the default user that can use the resource defined in the parent tag.

<name>

Define the default user name when using the JDBC resource or JMS.

<password>

Define the password used by the default user defined in the <name> tag



This definition is stored in the text file on the server. It is recommended that the password alias should be defined in the JDBC resource or JMS resource.

ejb (parent tag : [enterprise-beans](#))

Definition for the EJB application.

<ejb-name>

Specify the EJB application Enterprise Bean name that is linked with that EJB application declared by EJB application deployment descriptor (ejb-jar.xml) or annotation.

<jndi-name>

- Session and entity bean which defined Remote Business interface or Remote interface:
Specify the EJB application name that is registered with JNDI.
If this tag is omitted, the EJB application name is determined by the following order.
 1. Value defined in the ejb-jar.xml <mapped-name>
 2. Value defined in the @Stateless or @Stateful mappedName attribute defined in the EJB application Java source.
- Message-driven bean that receives messages from JMS:
Specify the Destination name that is used.
- Other cases:
This definition is ignored.

ejb-name (parent tag : [entity-mapping](#))

Specify the enterprise bean name that matches with CMP entity bean defined in the ejb-jar.xml file.

ejb-ref (parent tag : [sun-web-app](#), [ejb](#), [sun-application-client](#))

Specify EJB application JNDI name (Real name of the operation environment) that supports the reference name defined in the Java EE deployment descriptor <ejb-ref> tag, or @EJB, @EJBs annotation.

<ejb-ref-name>

Define the reference name of the EJB object.

The reference name that is used here should be the reference name defined in the Java EE deployment descriptor <ejb-ref-name> tag.

<jndi-name>

Define the EJB application JNDI name in the real operation environment.



See

Refer to "JNDI" in the "Functionality Provided in the Java EE Application" chapter for an explanation on how to make the above definitions.

enterprise-beans (parent tag :[sun-ejb-jar](#))

Definition on the application defined in the EJB JAR file.

entity-mapping (parent tag :[sun-cmp-mapping](#))

Define the mapping of the database column and the CMP entity bean.

ior-security-config (parent tag :[ejb](#))

Set the integrity and confidentiality of IOP communication authentication and the communication data for the Enterprise JavaBean.

<transport-config>

Specify the security level of the transport layer.

If one of them specified "REQUIRED", the communication takes place with SSL or TLS.

<integrity>

Set the integrity of the communication data.

If the communication data is likely to be falsified, specify REQUIRED.

- NONE:
EJB container does not support the communication data completely.
- SUPPORTED:
EJB container supports the communication data completely.
- REQUIRED:
EJB container requests the client to support the communication data completely.

<confidentiality>

Set the confidentiality of the messages.

If the communication data is likely to be tapped, specify REQUIRED.

- NONE:
EJB container does not support the confidentiality of the communication data.
- SUPPORTED:
EJB container supports the confidentiality of the communication data.
- REQUIRED:
EJB container requests the client to support the confidentiality of the communication data.

<establish-trust-in-target>

Set if the EJB container can be authenticated from the client.

- NONE:
Client cannot authenticate the EJB container.
- SUPPORTED:
Client can authenticate the EJB container.

<establish-trust-in-client>

Set if the EJB container can authenticate the client.

- NONE:
Client cannot authenticate the EJB container.

- SUPPORTED:
Client can authenticate the EJB container.
- REQUIRED:
EJB container requests the authentication of the client. The client requires the client certification.

<as-context>

Specify the authentication information that the client delivers to the EJB container.

<auth-method>

Specify the authentication procedure.

In the case of IIOP communication, specify the USERNAME_PASSWORD.

<realm>

Specify the realm used by the client authentication. Set the default.

The realm that is used will be the default realm.

<required>

Specify if the client should provide the user name and password.

Specify true or false. If true is specified, the Bean will request the EJB client to specify the user name and the password.

<sas-context>

Set the identification information that is delivered from the client.

<caller-propagation>

Specify if the identification information delivery from the client is supported.

- NONE:
Identification information delivered from the client is not supported.
- SUPPORTED:
The client can deliver the identification information.

jsp-durable-subscription-name (parent tag :[ejb](#))

In the case of EJB application EJB 2.1 or later, the subscriber identification name is defined in the annotation of the EJB application deployment descriptor (ejb-jar.xml) activation-config tag or @ActivationConfigProperty. The subscriber identification name is determined by the following order.

1. Subscriber identification name defined in the EJB application deployment descriptor (ejb-jar.xml) activation-config tag
2. Subscriber identification name defined in the annotation of the @ActivationConfigProperty
3. Subscriber identification name defined by this tag.

jsp-config (parent tag :[sun-web-app](#))

Define the common value that controls JSP within the web application using the <[property](#)> tag. The specifiable properties are shown below.

Property name	Default value	Meaning
enablePooling	true	Specify if the tag pooling is used. - true: Use. - false: Not to use.
ignoreJspFragment Errors	false	Specify if the error of the JSP file that includes the static is ignored if precompiling JSP - true: Ignore. - false: Do not ignore. Valid only for JSP precompile. Not valid for the structure check (verification of the deployment module).
keepgenerated	false	Specify if the Java source code is generated when JSP is compiled (*1)

Property name	Default value	Meaning
		<ul style="list-style-type: none"> - true: Generate - false: Do not generate
development	false	Specify if the JSP auto reload should be performed at the time of request. <ul style="list-style-type: none"> - true: Perform the auto reload. - false: Do not perform the auto reload.
checkInterval	0	Specify the interval (seconds) that performs JSP auto reload. The auto reload is activated if false is set in the development and if the value larger than 0 is set. Active range: 1 - 2147483647
scratchdir	(*2)	Specify the directory that stores the JSP compile with the absolute path. (*3) This definition is not active during JSP precompile. It functions with the default value.
usePrecompiled	false	Specify whether JSP is executed using the JSP precompile result in the web application. <ul style="list-style-type: none"> - true: The JSP precompile result is used <ul style="list-style-type: none"> - Store the JSP precompile result in WEB-INF/classes or WEB-INF/lib (when managed as JAR files) for each package configuration. - If there is no JSP precompile result, message PWC6034 is output and the JSP execution fails. - The JSP auto reload function is disabled, regardless of this setting. - false: The JSP precompile result is not used

*1) keepgenerated is active for the compile when JSP is executed. If the compile is used during deployment, Java source code must be generated regardless of the settings of keepgenerated.

*2) For details, refer to "IIServer Cluster File Configuration", "JSP Compile Result Storage Directory" in the "Functionality Provided in the Java EE Application" chapter.

*3) Even if the web application is undeployed, the JSP compile result in the directory that was specified in scratchdir is not deleted. If the JSP compile result is not required, delete it manually.

Note

If the JSP compile result storage directory is specified by the scratchdir, the length of the path is based on the following.

Windows32/64

Specifiable path length =
 Maximum path length (255 bytes) -
 Package path (org\apache\jsp\ : 15 bytes) -
 JSP storage directory path within the web application (any user) -
 JSP compile result (JSP file name _jsp.class)

Solaris32/64 Linux32/64

Specifiable path length =
 Maximum path length (1023 bytes) -
 Package path (org/apache/jsp/ : 15 bytes) -
 JSP storage directory path within the web application (any user) -
 JSP compile result (JSP file name _jsp.class)

Example

This describes specifiable path length when JSP is stored under the following structure.

sample.war	
	/jsp
	/sample.jsp
	/WEB-INF

Windows32/64

Specifiable path length =
 Maximum path length (255 bytes) -
 Package path (org/apache/jsp) : 15 bytes -
 JSP storage directory path within the web application (**\jsp**: 4 bytes) -
 JSP compile result (**\sample_jsp.class** : 17 bytes) = 219 bytes(JSP file name _jsp.class)

Solaris32/64 Linux32/64

Specifiable path length =
 Maximum path length (1023 bytes) -
 Package path (org/apache/jsp/ : 15 bytes) -
 JSP storage directory path within the web application (**\jsp**: 4 bytes) -
 JSP compile result (**/sample_jsp.class** : 17 bytes) = 987 bytes

lock-when-loaded (parent tag : [consistency](#))

Defines the lock feature at the time of the search.
 The tag value must be null.

<lock-when-loaded/>

or

<lock-when-loaded></lock-when-loaded>

If this tag is defined, an update lock is applied to rows searched using the SELECT statement that is issued by the EJB container. The "update lock" is a lock that guarantees consistency of data by locking the rows that were referenced at the time of the search processing until the transaction processing completes.

log-service (parent tag : [client-container](#))

Specify the log output level.
 This shows the specifiable attributes.

Attribute name	Default value	Meaning
level	INFO	Specify the log output level. INFO: output information message, warning message, and error message (*1) WARNING: output warning message, and error message (*2) SEVERE: output error message

*1) Specify the INFO level if the log needs to be collected for troubleshooting.

*2) Default sun-acc.xml file used when -xml option is not specified, specify the WARNING.

mdb-connection-factory (parent tag : [ejb](#))

Specify the ConnectionFactory name (Real operation environment name) that is linked to the message-driven bean that receives messages from JMS.

<jndi-name>

Specify the JNDI name (Absolute name).



The <default-resource-principal> tag can be described under this tag, but it cannot be used.

To define ConnectionFactory authentication information in the Message-driven Bean unit, define it in <activation-config-property> of ejb-jar.xml. For details, refer to "[Authentication Method for Using JMS from an Application](#)" in the "Java EE Function Security" chapter.

mdb-resource-adapter (parent tag :[ejb](#))

The definition of type subject to receive the message-driven bean.

<resource-adapter-mid>

Specify the resource adapter name if the message-driven bean receives a message from the resource adapter.

Specify the "jmsra" if a message is received from JMS, or omit the <mdb-resource-adapter> definition.

<activation-config>

This is the configuration for activation.

<description>

This is the description text for activation configuration.

<activation-config-property>

Specify the activation configuration property

<activation-config-property-name>

Specify the activation configuration property name.

<activation-config-property-value>

Specify the activation configuration property value.

message-destination (parent tag :[sun-web-app](#), [enterprise-beans](#), [sun-application-client](#))

Define the JNDI name of the JMS Destination object in the real operation environment for the reference name defined in <message-destination> tag, @Resource or @Resources of the Java EE deployment descriptor.

<message-destination-name>

Define the reference name for the JMS Destination object.

The reference name specified here should be the reference name defined in the <message-destination-ref> tag of the Java EE deployment descriptor.

<jndi-name>

Define the JNDI name of the JMS Destination object in the real operation environment.



Refer to "JNDI" for an explanation of how to make the above definitions.

message-destination-ref (parent tag :[sun-web-app](#), [ejb](#), [sun-application-client](#))

Define the JNDI name of the JMS Destination object in the real operation environment for the reference name defined in the <message-destination-ref> tag of the Java EE deployment descriptor, @Resource or @Resources.

Specify the JMS destination object in the corresponding real operation environment if the message-destination-link is defined by the message-destination-ref tag of the Java EE deployment descriptor.

<message-destination-ref-name>

Define the reference name for the JMS Destination object.

The reference name specified here should be the reference name defined in the <message-destination-ref-name> tag of the Java EE deployment descriptor.

<Jndi-name>

Define the JNDI name of the JMS Destination object in the real operation environment.



See

Refer to "JNDI" in the "Functionality Provided in the Java EE Application" chapter for an explanation of how to make the above definitions.

parameter-encoding (parent tag :[sun-web-app](#))

Define the encoding used within the web application.

Specifiable attributes are shown below.

Attribute name	Default value	Meaning
default-charset	ISO-8859-1	Specify the encoding used for parameter analysis or the body processing requested by the client.

pass-by-reference (parent tag :[sun-application](#), [ejb](#))

Specify whether to deliver the copy of the argument and the return value or to deliver the reference if Servlet or Enterprise JavaBean calls another method of Enterprise JavaBean remote interface (Home interface, Remote interface, Remote Business interface) on the same process. If a value other than the above is specified, the operation is regarded as false. The operation of each specified value is described below.

- true:

Deliver the reference of the argument and the returned value. The performance will enhance as a copy is not created. However, if the returned value is changed at the call origin, the value of the call destination is also changed. Therefore, the application function will be affected. This should be specified only when the method argument and the returned value are not updated.

- false: (default value)

Deliver the copy of the argument and the returned value. The function is based on the EJB conversion. Since this creates a copy, the performance overhead is expected. However, even if the delivered value is changed at the call origin, the value of the call destination does not change. Therefore, the application function can be the same as the case where the same Enterprise JavaBean is called on another process.



Note

- This tag is only valid if an EAR or JAR file containing a caller Servlet or Enterprise JavaBean as well as a called Enterprise JavaBean has been deployed. In other words, it is valid in the range loaded by the same class loader.

- The method of specifying the above data in the sun-application.xml pass-by-reference tag is not supported.

To use this feature, specify the above data in the sun-ejb-jar.xml pass-by-reference tag.

principal (parent tag :[ejb](#))

Specify the principal name (user name) for the security role specified in the annotation of the run-as tag or @RunAs of the EJB application deployment descriptor (ejb-jar.xml).

The definition is not required if there is only one user for the security role.

<name>

Specify the principal name (user name).

property (parent tag :[sun-web-app](#), [session-properties](#), [cookie-properties](#), [client-container](#))

Define the property for the parent tag.

Specifiable attributes and properties are shown below.

Attribute name	Default value	Meaning
Name	-	Specify the property name.

Attribute name	Default value	Meaning
Value	-	Specify the property value.

Property name	Default value	Meaning
Description	-	Describe the property description. This cannot be specified if the parent tag is the client-container tag.

resource-env-ref (parent tag :[sun-web-app](#), [ejb](#), [sun-application-client](#))

Specify the JNDI name of the JMS Destination (Queue,Topic) operation environment for the reference name defined in the <resource-env-ref> tag, @Resource or @Resource of the Java EE deployment descriptor.

By defining this tag, the function that is equivalent to the IJServer (J2EE) name conversion can be used.

<resource-env-ref-name>

Define the reference name of the JMS Destination (Queue, Topic).

The reference name specified here should be defined by the <resource-env-ref-name> tag of the Java EE deployment descriptor.

<jndi-name>

Define the JNDI name in the real operation environment.



See

Refer to "JNDI" in the "Functionality Provided in the Java EE Application" chapter for an explanation of how to make the above definitions.

resource-ref (parent tag :[sun-web-app](#), [ejb](#), [sun-application-client](#))

Specify the real URL operation environment name of JDBC data source, JMS (ConnectionFactory), JavaMail, connector for the reference name defined in the <resource-ref> tag of the Java EE deployment descriptor, or annotations @Resource and @Resources.

<res-ref-name>

Define the reference name of the resource.

The reference name specified here should be defined by the <res-ref-name> tag of the Java EE deployment descriptor.

<jndi-name>

Define the JNDI name in the real operation environment.



See

Refer to "JNDI" in the "Functionality Provided in the Java EE Application" chapter for an explanation of how to make the above definitions.

schema (parent tag :[sun-cmp-mapping](#))

Specify the file path of the schema information of the database obtained from the capture-schema command.

Specify the relative path from the top of the ejb-jar file and omit the extension (".dbschema"). Use a forward slash ("/") as the path delimiter.

The tag value must be null when the schema information is automatically obtained.

Example 1

When there is a schema file with the name EJB.schema, and the META-INF directory under the ejb-jar file contains schema files

```
<schema>META-INF/EJB</schema>
```

Example 2

When the schema information is to be obtained automatically

```
<schema />
or
<schema></schema>
```

security-role-mapping (parent tag :[sun-application](#), [sun-web-app](#), [sun-ejb-jar](#))

The user or the group defined in the security role and realm that are defined in the Java EE deployment descriptor is mapped.

Define if the Java EE security is used.

<role-name>

Define the security role defined in the Java EE deployment descriptor.

<principal-name>

Define the user ID defined in the realm.

<group-name>

Define the group name defined in the realm.



To support multiple users (or groups) for one security role, define multiple `<principal-name>` tags (or `<group-name>` tag) in one `<security-role-mapping>` tag.

```
<security-role-mapping>
  <role-name>roleA</role-name>
  <principal-name>userA</principal-name>
  <principal-name>userB</principal-name>
  <group-name>GroupA</group-name>
  <group-name>GroupB</group-name>
</security-role-mapping>
```

If defined in multiple `<security-role-mapping>` tags separately as shown below, the security role and the user (or group) mapping do not work properly.

```
<security-role-mapping>
  <role-name>roleA</role-name>
  <principal-name>userA</principal-name>
</security-role-mapping>

<security-role-mapping>
  <role-name>roleA</role-name>
  <principal-name>userB</principal-name>
</security-role-mapping>
```

servlet (parent tag :[sun-web-app](#))

Define the servlet or JSP function.

<servlet-name>

Define the servlet or JSP name.

The name that is specified here should be defined in the `<servlet-name>` tag of the deployment descriptor (web.xml).

<principal-name>

Specify the principal name (user name) for the security role specified in the `<run-as>` tag of the deployment descriptor (web.xml) or `@RunAs` annotation.

The definition is not required if there is only one user for the security role.

session-config (parent tag :[sun-web-app](#))

Define the common value that controls the session within the web application.

session-manager (Parent tag: session-config)

Define the common value that controls the session manager that manages sessions in the web application.

Attribute name	Default value	Meaning
persistence-type	memory	Specify the serialization method used by the web application. <ul style="list-style-type: none"> - memory : Do not serialize - isjee-src : Serialization using session recovery

session-properties (parent tag :[session-config](#))

Define the common value that controls the session within the web application using the [<property>](#) tag.

Specifiable property is shown as below.

Property name	Default value	Meaning
enableCookies	true	Specify if the session ID should be set in the cookie. If it is set, the session using the cookie can be traced. <ul style="list-style-type: none"> - true: Set - false: Not set

sun-application

Define the start and end of the Interstage application deployment descriptor.

sun-application-client

Define the start and end of the Interstage application client deployment descriptor.

sun-cmp-mapping (parent tag :[sun-cmp-mappings](#))

Define the mapping information of the CMP entity bean mapped to the specific schema.

sun-cmp-mappings

Define the start and end of the Interstage CMP Mappings deployment descriptor.

sun-ejb-jar

Define the start and end of the Interstage EJB application deployment descriptor.

sun-web-app

Define the start and end of the Interstage web application deployment descriptor.

The common value can also be defined using [<property>](#) tag within the same web application.

Specifiable properties are shown below.

Property name	Default value	Meaning
crossContextAllowed	false	Specify if the dispatch to another web application is authorized. <ul style="list-style-type: none"> - true: Authorized - false: Not authorized
Listings	false	Specify if the list of directory is shown. <ul style="list-style-type: none"> - true: To show (*1) - false: Not to show
fileEncoding	OS default encoding	Specify the encoding used to process the static resource if dispatched to the static resource from servlet and JSP.

*1) If true is selected for the listings, the memory usage will increase in accordance with the file increase within the directory or the number of simultaneous processes requested. Using the default value is recommended from the security point of view.

table-name (parent tag :[entity-mapping](#))

Specify the table name of the database that is used.

target-server (parent tag :client-container)

Define the IIOP listener of the server that is accessed. The host name, IP addresses and port number are specified in the listener. Specifiable attributes are shown below.

Attribute name	Default value	Meaning
Name	None	Specify a name that is unique.
Address	None	Specify the host name or IP address that can be resolved by the DNS server that is accessed by the client.
Port	None	Specify the port number of the server naming service accessed by the client.

unique-id (parent tag :sun-application, enterprise-beans)

The system ID is specified in the range -9223372036854775808 ~0 and 2~ 9223372036854775807. Only use it when using the load balancing function for IIOP communication that is integrated with IPCOM.

Note

- If this tag is specified, and 0 is set, it is used by the system automatically. For this reason, set a value except 0 to use the load balancing function.
- If the value set for this tag matches the value set for another application (the system will include the application executed because of an internal process), then the application might fail to load. In this case, change the value and redeploy the module.

use-thread-pool-id (parent tag :ejb)

Specify the pool name of the thread used for the remote call.
Default thread pool is used if the omitted or undefined thread pool is specified.
For the thread pool function, refer to "Thread pooling" in the "Java EE Function Tuning" chapter.

webservice-endpoint (parent tag :ejb)

Defines the setting for making the Stateless Session Bean public as the web service endpoint.

<port-component-name>

Describes the web service name specified for the name attribute of the javax.jws.WebService annotation. If nothing was specified, then the class name for the EJB implementation class is described.

<login-config>

Defines the client authentication method.

<auth-method>

Defines the authentication method. The following value is supported:

BASIC : HTTP Basic authentication

<realm-name>

Defines the realm name used in authentication. If omitted, the default realm is selected.

3.3 Application Debugging

Application debugging can be performed in the following methods.

Debugging using the application debug information

This is used to check the debug information output in the standard output or the standard error output when the application is executed.

Debugging using the debugger

This is used to check the function of the application while referring to or changing the variables in the program using the Interstage Studio debugger.

Debugging using the thread stamp

This is used to check problems of the application based on the thread stamp output when the application has timed out or has become non-response.

Debugging using the Java method trace

This is used to check each method argument and the returned value using the Java method trace function.

3.3.1 Debugging Using the Application Debug Information

Problems of the application can be identified by referring to the debug information output in the log file, by describing each process in order to output the debug information on the application.

The application debug information output in the standard output or the standard error output is output in the IJServer cluster log file.

For IJServer cluster log file, refer to "Java EE Application Logs" in the "Java EE Application Operation" chapter.

3.3.2 Debugging Using the Debugger

This is the method to debug using the debugger provided by the Interstage Studio.

When the debugger is used, the logical error of the processing can be detected while the developed application is executed.

Debugging is generally performed while referring to or changing the variable of the program in the halt status at the breakpoint after setting the breakpoint on the program source.

For details about debugging using the debugger, refer to the Interstage Studio User's Guide.



Note

.....
If IJServer cluster is debugged, IJServer clusters for which the server instance count is 2 or higher cannot be started. Set 1 for the IJServer cluster server instance count.
.....

3.3.3 Debugging Using the Thread Stamp

This is the method to debug the application using the thread stamp.

The thread stamp is output to the IJServer cluster Java VM log twice at an interval of 10 seconds by the collection trigger below. This can detect problems in the application functionality on the thread where no changes are found on the thread stamp performed twice.

Thread stamp collection trigger

- IJServer cluster startup timeout

This may occur if the IJServer cluster start process, such as the execution class and the servlet init method, has a problem or the process is taking too long. The timeout value is set with the "Processing startup wait time".

- Application timeout

There may be a problem in the application or the processing is taking too long. The timeout value is set with "Application maximum processing time".

- Timeout when the IJServer cluster is stopped in force

If the "Process stop time in force" elapsed because IJServer cluster is stopped by force, the thread stamp is collected automatically. The timeout value is set with "Process stop time in force".

Any thread stamp can be referenced using the Interstage Java EE Admin Console or the asadmin command.

For details, refer to the Interstage Java EE Admin Console Help or "asadmin", "generate-jvm-report Subcommand" in the "Java EE Operation Commands" chapter.

3.3.4 Debugging Using the Java Method Trace

This is the method to debug using the Java method trace function.

By collecting the trace at the method level of the Java EE application, useful information can be obtained to analyze to what extent the application processing is working normally or during which process the application stopped or an error occurred.

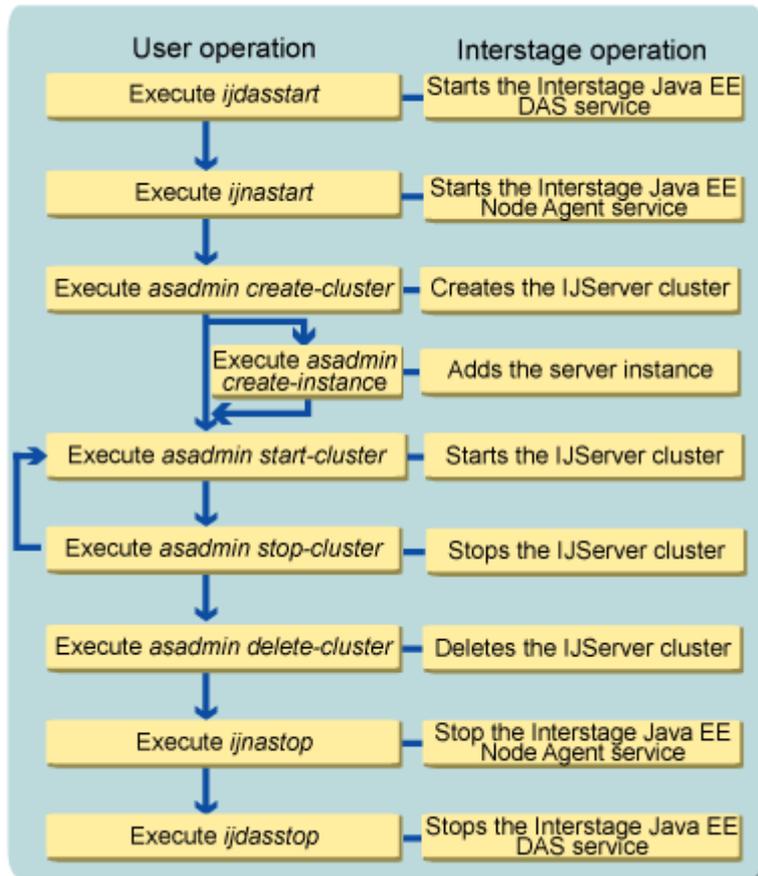
To use the method trace function, the JVM option and the native library path must be specified. For how to specify the JVM option and the native library path, refer to "Java VM Definition Items" in the "List of Definition Items" chapter.

To specify escape characters when using the JVM option, refer to "asadmin", "Using Escape Characters" in the "Java EE Operation Commands" chapter.

Chapter 4 Java EE Application Operation

This chapter explains the Java EE application operation method.

Java EE application operations are performed according to the following type of flow.



To operate Java EE applications via a web server, the Interstage JMX service must be started beforehand.

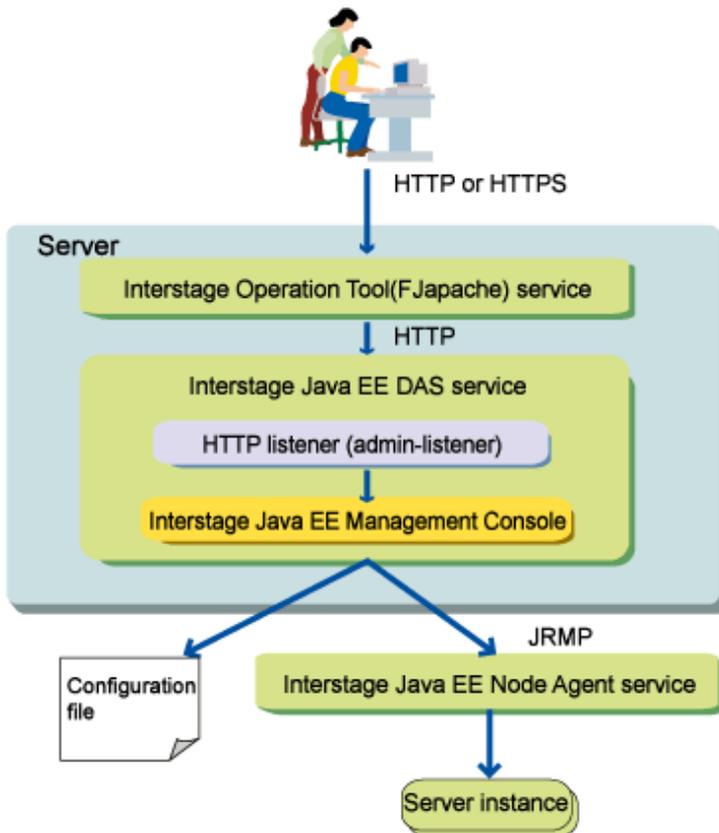
4.1 Operations Using Interstage Java EE Admin Console

For Java EE function operations use the web-based GUI tool Interstage Java EE Admin Console.

The Interstage Java EE Admin Console has an integrated operations view for each Interstage Java EE function, which allows operations to be unified. When the Interstage Java EE Admin Console is used, Java EE configuration definitions and tuning definitions can be operated easily.

The user accesses the Interstage Java EE Admin Console using the web browser. Requests from the web browser are sent to the Interstage Java EE DAS service HTTP listener (admin-listener), and the Interstage Java EE Admin Console receives the processing requests. The Interstage Java EE Admin Console is used for the update of various configuration files and Interstage Java EE Node Agent service operations, and for various Java EE function operations.

The relationship between each service is shown in the following figure:



Services Required for Interstage Java EE Admin Console

To use the Interstage Java EE Admin Console, the services below must be started on the server:

- Interstage Java EE DAS service

This is a service that receives requests for various Java EE services.

To start the required services, follow the procedure below:

Windows32/64

Start the Windows services below:

- Interstage Java EE DAS

Solaris32/64 Linux32/64

Issue the commands below:

- `ijdasstart` (for details, refer to "ijdasstart" in the "Java EE Operation Commands" chapter)

Starting the Interstage Java EE Admin Console

After starting the services above, start the web browser on the machine that is used to operate the Java EE Admin Console, and then connect to the console by specifying the Interstage Java EE Admin Console URL. The URL that is specified will vary depending on whether SSL encrypted communication between the web browser and the Interstage Java EE Admin Console is used or is not used.

Select whether SSL encrypted communication will be used or not used during installation.

When SSL Encrypted Communication is Used

Specify the following URL:

```
https://host name:port number/javaee_admin/
```

Host name

Specify the host name or IP address of the server on which this product is installed.

Port number

Specify the operation management HTTP listener port number. The operation management HTTP listener port number is set at the time of the installation. The default is 12001.

When SSL Encrypted Communication is not Used

Specify the following URL:

```
http://host name:port number/javaaee_admin/
```

The host name and port number specified are the same as when SSL encrypted communication is used.

4.1.1 How to Use the Interstage Java EE Admin Console

Interstage Application Server provides the following two admin consoles.

Interstage Java EE Admin Console

This console is used to perform operations using Java EE functions.

This console can be used if "Java EE" was selected at installation time.

Interstage Management Console

This console is used to perform operations using functions other than Java EE functions.

This console can be used if "Interstage Management Console" was selected at installation time.

If both "Java EE" and "Interstage Management Console" are selected at installation time, both admin consoles can be used.

In this case, select either of the following methods for using the admin consoles:

- [Integrated GUI Operations](#)
- [GUI Stand-alone Operations](#)

Integrated GUI Operations

With integrated GUI operations, both the Interstage Java EE Admin Console and the Interstage Management Console can be used in a single web browser.

The procedure for using integrated GUI operations is explained below.

Procedure

1. Start a web browser with a new session and log in to the Interstage Java EE Admin Console to use Java EE functions.
2. To use the Interstage Management Console, click the [Switch to Console] button to switch to the Interstage Management Console. The tree node for the Interstage Java EE Admin Console will not be displayed in the Interstage Management Console.



Note

- To start a web browser with a new session, start the Interstage Management Console using the following method.
 - For Internet Explorer 8/9/10
If the web browser is already running, select [New Session] from the [File] menu of the web browser to start a new web browser.
If the web browser is not already running, any new web browsers started will always start with a new session.
 - For Internet Explorer 7
The web browser will always start with a new session.
- For integrated GUI operations, operations must be performed using the same user account. Integrated GUI operations cannot be used with different user accounts.

- To change the authentication method for the admin consoles from the default authentication (operating system authentication) method, create a user account (a user name and password) that can log in to both admin consoles before using the admin consoles. However, even if a user account that can log in to both consoles is used, integrated GUI operations cannot be used if the user logs in using the login window for the Interstage Management Console.
- If the [Switch to Console] button is not clicked, the operating method is the same as for GUI stand-alone operations.
- Do not click the [Switch to Console] button until the drawing of the window has completed. If the [Switch to Console] button is clicked before the drawing of the window is complete, errors may occur when displaying windows or switching between windows.

GUI Stand-alone Operations

With GUI stand-alone operations, the Interstage Java EE Admin Console and the Interstage Management Console are operated in separate web browsers.

The procedure for using GUI stand-alone operations is explained below.

Procedure

1. Start a new web browser window and log in to the Interstage Management Console to use the Interstage functions.
2. To use the Interstage Java EE Admin Console, click the tree node for the [Interstage Java EE Admin Console], and then log in from the displayed Interstage Java EE Admin Console login window. The [Switch to Console] button will not be displayed in either admin console.

4.2 Operations Using Commands

Java EE operations and definition changes can also be executed using commands.

In Java EE, multiple commands, starting with the `asadmin` command, are provided.

For details on the operation for each command, refer to "Java EE Operation Commands".

4.3 Interstage Java EE DAS Service Operations

This section explains the Interstage Java EE DAS service operations.

4.3.1 Operations

Use a command for the Interstage Java EE DAS service operations (*1).

For details on these operations, refer to the following in the "Java EE Operation Commands" chapter:

- `"ijdasstart"`
- `"ijdasstat"`
- `"ijdasstop"`

*1 [Windows32/64](#)

The operation can also be performed from the [Services] window.

Messages

When the start/stop operation completes normally, the following messages are output to the event log/system log.

Operation	Message
Starting a service	ijdas10000
Stopping a service	ijdas10001

For details on the messages, refer to "ijdas10000 to ijdass10099" in the "Messages that Contain "ijdas" in the Message ID" section.

4.3.2 Changing the Settings

Use the `asadmin` command or the Interstage Java EE Admin Console to change the Interstage Java EE DAS service settings.

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- Explanation on each subcommand in "`asadmin`"

4.3.3 Environment Variable Settings

Environment variables can be set in the Interstage Java EE DAS service according to the following procedure:

Windows32/64

Edit the system environment variable, and then restart the system.

Solaris32/64 **Linux32/64**

Edit the command prompt environment variable that executes the `ijdasstart` command, and then restart the Interstage Java EE DAS service.



Solaris32/64

To change the "PATH" environment variable, change the settings of the `su` command. Edit `SUPATH` of the `/etc/default/su` file. For details, refer to the online manual of the `su` command.

Solaris32/64 **Linux32/64**

To set `/opt/FJSVawjbc/jdk*/bin` (* is a variable value that represents the JDK version) in the "PATH" environment variable, edit the following settings file:

Settings file

`/opt/FJSVisjee/lib/processLauncher.xml`

Setting procedure

1. Stop the Interstage Java EE Node Agent service.
2. Stop the Interstage Java EE DAS service.
3. Open the settings file using an editor, and then search for the following:

The `<sysproperty key="com.fujitsu.interstage.javaee.pathSuffix"/>` tag enclosed between the `<process name="as9-server"></process>` tags

4. Perform the following change:

Before the change

```
{com.sun.aas.installRoot}/../FJSVisjmx/bin:${com.sun.aas.installRoot}/../FJSVejb/bin:${com.sun.aas.installRoot}/../FJSVod/bin:${com.sun.aas.installRoot}/../FJSVextp/bin:${com.sun.aas.installRoot}/../FJSVjms/bin:${com.sun.aas.installRoot}/../FJSVj2ee/bin:${com.sun.aas.javaRoot}/bin:/bin
```

After the change

```
{com.sun.aas.installRoot}/../FJSVisjmx/bin:${com.sun.aas.installRoot}/../FJSVejb/bin:${com.sun.aas.installRoot}/../FJSVod/bin:${com.sun.aas.installRoot}/../FJSVextp/bin:${com.sun.aas.installRoot}/../FJSVjms/bin:${com.sun.aas.installRoot}/../FJSVj2ee/bin:/bin
```

5. Start the Interstage Java EE DAS service.
 6. Start the Interstage Java EE Node Agent service.
-

4.3.4 Deploying the Application

To deploy the application to the Interstage Java EE DAS service, use the Interstage Java EE Admin Console or the `asadmin` command `deploy` subcommand.

At this time, specify the Interstage Java EE DAS service instance name 'server' for the target.

For details on the deployment of applications, refer to "[4.6 Deploying Applications](#)".

4.3.5 Creating the Resources

To create the resources in the Interstage Java EE DAS service, use the Interstage Java EE Admin Console or the `asadmin` command `resource-related` subcommand.

At this time, specify the Interstage Java EE DAS service instance name 'server' for the target.

4.3.6 Application Operations

This section explains how to execute web applications.

Common Items

Server Logs

In addition to deployed applications, execute command messages are also output.

For details on the log settings, refer to "[2.2.2 Interstage Java EE DAS Service Log Files](#)".

4.3.6.1 Executing Web Applications

The sections below contain notes on executing web applications using the Interstage Java EE DAS service.

Information

Changing Settings

On the Interstage Java EE DAS service, there are not only deployed web applications, but also management applications such as the Interstage Java EE Admin Console. For this reason, any changes made to settings for deployed web applications are also enabled for the management applications.

If a management application does not run properly due to settings changes, then restore them to their previous state. If the Interstage Java EE DAS service cannot start, refer to "Operating Environment-Related Errors".

HTTP Access Logs

When the HTTP access log is enabled, the files below are generated:

- `_asadmin_access_log`
- `server_access_log`

`_asadmin_access_log` is an HTTP access log for management applications. For details on deployed web applications, refer to `server_access_log`.

4.3.7 Automatic Startup/Stop of a Service

After installation, the Interstage Java EE DAS service automatically starts up when the OS starts up.

The automatic startup can be disabled, according to the procedure below.

Windows32/64

In the [Interstage Java EE DAS] service, change [Startup Type] to [Manual] - to undo this change, set it back to [Automatic].

Solaris32/64

Follow the procedure below:

```
# rm /etc/rc0.d/K01FJSVijdas
# rm /etc/rc2.d/S98FJSVijdas
```

To restore the automatic startup setting, reregister the RC script that was deleted. To do that, create the `/opt/FJSVisjee/bin/FJSVijdas` symbolic link under `/etc/rc0.d` and `/etc/rc2.d`:

```
# ln -s /opt/FJSVisjee/bin/FJSVijdas /etc/rc0.d/K01FJSVijdas
# ln -s /opt/FJSVisjee/bin/FJSVijdas /etc/rc2.d/S98FJSVijdas
```

Linux32/64

Follow the procedure below:

```
# /sbin/chkconfig --del FJSVijdas
```

To restore the automatic startup setting, reregister the startup script that was deleted. Configure the system service using the `chkconfig` command:

```
# /sbin/chkconfig --add FJSVijdas
```



Execute this task as a root user.

4.4 Interstage Java EE Node Agent Service Operations

This section explains the Interstage Java EE Node Agent service operations.

4.4.1 Operations

Use a command for the Interstage Java EE Node Agent service operations.

Windows32/64

The operation can also be performed from the [Services] window.

Command-based Operations

Operations can be performed using the following integrated Interstage commands:

- isstart
- isstat
- isstop

For details on the integrated Interstage commands, refer to "Interstage Setup Commands" in the Reference Manual (Command Edition).

By using the following commands, operations can be performed on the Interstage Java EE Node Agent service by itself:

- "ijnastart"
- "ijnastat"
- "ijnastop"

Operations can also be performed using the Interstage Management Console or the Interstage Java EE Admin Console. The operations that can be performed using the Interstage Management Console and the Interstage Java EE Admin Console are as follows:

	Operation		
	Start	Stop	Check startup status
Interstage Management Console	Yes	Yes	No
Interstage Java EE Admin Console	No	No	Yes

Operations Using the Interstage Management Console

The Interstage Management Console can be used to start and stop the Interstage Java EE Node Agent service by starting and stopping Interstage. To start or stop Interstage, select [System] and then the [Status] tab in the Interstage Management Console, and execute either [Start] or [Stop].

Operations Using the Interstage Java EE Admin Console

The startup status of the Interstage Java EE Node Agent service can be checked using the Interstage Java EE Admin Console. To check the startup status of the Interstage Java EE Node Agent service, select [Node Agents] in the Interstage Java EE Admin Console.

When the Interstage Java EE Node Agent service is started/stopped, the IJServer clusters under it are started/stopped automatically. For details, refer to "[4.5.7 Automatic Start/stop of an IJServer Cluster](#)".



If this operation is performed before startup of the Interstage Java EE DAS service is complete, then repository synchronization will not be performed. In this case, OM1068 is output to the system log/event log. For details on repository synchronization, refer to "[2.1.4 Repository Synchronization](#)".

Messages

When the start/stop operation completes normally, the following messages are output to the event log/system log.

Operation	Message
Starting a service	ijna10000
Stopping a service	ijna10001

For details on the messages, refer to "ijna10000 to ijna10099" in the "Messages that Contain "ijna" in the Message ID" section.

4.4.2 Changing the Settings

Use the `asadmin` command or the Interstage Java EE Admin Console to change the Interstage Java EE Node Agent service settings.

For details on these operations, refer to the following:

- [Interstage Java EE Admin Console Help](#)
- [7.2 Interstage Java EE Node Agent Service Definition Items](#)
- [10.1.4 Subcommands - Category: Referencing/Updating Definition Items](#)

4.4.3 Environment Variable Settings

Environment variables can be set in the Interstage Java EE Node Agent service according to the following procedure:

Windows32/64

Edit the system environment variable, then restart the system.

Solaris32/64 Linux32/64

In the command prompt, edit the environment variable that executes the `ijnastart` command, then restart the Interstage Java EE Node Agent service.



Solaris32/64

To change the "PATH" environment variable, change the settings of the `su` command. Edit `SUPATH` of the `"/etc/default/su"` file. For details, refer to the online manual of the `su` command.

To set /opt/FJSVawjbc/jdk*/bin (* is a variable value that represents the JDK version) in the "PATH" environment variable, edit the following settings file:

Settings file

/opt/FJSVisjee/lib/processLauncher.xml

Setting procedure

1. Stop the Interstage Java EE Node Agent service.
2. Stop the Interstage Java EE DAS service.
3. Open the settings file using an editor, and then search for the following:

The <sysproperty key="com.fujitsu.interstage.javaee.pathSuffix"/> tag enclosed between the <process name="as9-server"></process> tags

4. Perform the following change:

Before the change

```
{com.sun.aas.installRoot}/../FJSVisjmx/bin:{com.sun.aas.installRoot}/../FJSVejb/bin:
{com.sun.aas.installRoot}/../FJSVod/bin:{com.sun.aas.installRoot}/../FJSVextp/bin:
{com.sun.aas.installRoot}/../FJSVjms/bin:{com.sun.aas.installRoot}/../FJSVj2ee/bin:
{com.sun.aas.javaRoot}/bin:/bin
```

After the change

```
{com.sun.aas.installRoot}/../FJSVisjmx/bin:{com.sun.aas.installRoot}/../FJSVejb/bin:
{com.sun.aas.installRoot}/../FJSVod/bin:{com.sun.aas.installRoot}/../FJSVextp/bin:
{com.sun.aas.installRoot}/../FJSVjms/bin:{com.sun.aas.installRoot}/../FJSVj2ee/bin:/bin
```

5. Start the Interstage Java EE DAS service.
6. Start the Interstage Java EE Node Agent service.

4.4.4 Automatic Start/Stop of a Service

The Interstage Java EE Node Agent service will automatically start and stop when the Interstage service is started and stopped.

The Interstage service starts automatically when the operating system starts, and so the Interstage Java EE Node Agent service will also start.

4.5 IJServer Cluster Operations

This section explains the IJServer cluster operations.

4.5.1 Creating/deleting the IJServer Cluster

This section explains the creation of the IJServer cluster. Use the Interstage Java EE Admin Console or the `asadmin` command to create/delete the IJServer cluster. For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- `create-cluster` subcommand
- `delete-cluster` subcommand

Messages

When the IJServer cluster create/delete operation completes normally, the following messages are output to the system log/event log.

Operation	Message
Creating the IJServer cluster	OM2005
Deleting the IJServer cluster	OM2006

For details on the messages, refer to "OM2000 to OM2099" in the "Messages that Contain "OM" in the Message ID" section.

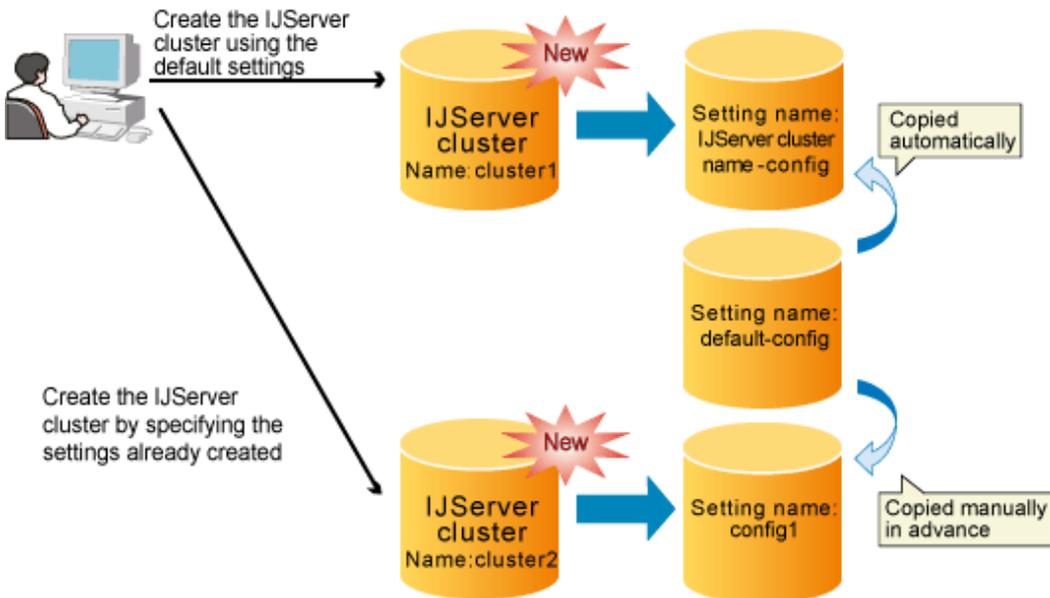
 **Note**

To operate Java EE applications via a web server, the Interstage JMX service must be started beforehand.

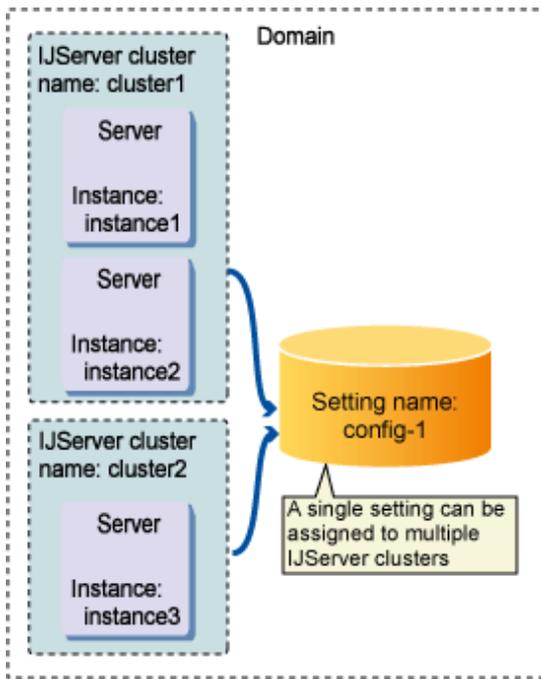
4.5.2 Managing the Settings

After the new IJServer cluster is created, it can be configured.

If these settings are not specified when the IJServer cluster is created, they are allocated automatically from the default settings (default-config) to the settings that were copied with the name "IJServer cluster name-config".



The relationship between the setting and the IJServer cluster is 1:n, therefore one setting can be shared in multiple IJServer clusters, as shown below.



This setting is also allocated to the Interstage Java EE DAS service with the name 'server-config'. This setting cannot be used for the IJServer cluster.

Note

- default-config/server-config cannot be deleted.
 - If these settings are not specified when the IJServer cluster is created, and there are already planned settings for automatic generation, the IJServer cluster cannot be created.
- Specify settings that have already been created or specify settings that do not exist, and then create the IJServer cluster.

For details on how to create the IJServer cluster, refer to the following:

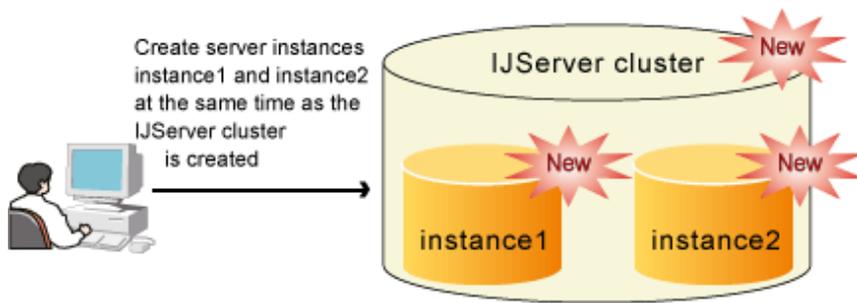
- Interstage Java EE Admin Console Help
- "asadmin" - "create-cluster subcommand"
- "asadmin" - "copy-config subcommand"
- "asadmin" - "delete-config subcommand"
- "asadmin" - "list-configs subcommand"

4.5.3 Adding/deleting the Server Instance

This section explains how to add a server instance to the IJServer cluster, which is a prerequisite for running applications in it.

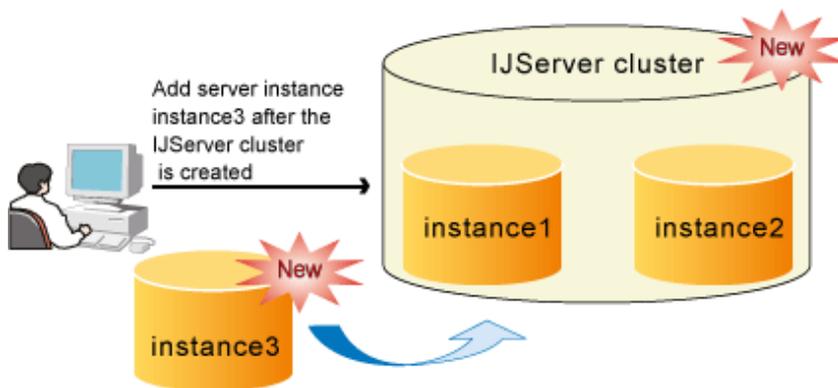
Adding the Server Instance during IJServer Cluster Creation

A server instance can be created alongside the IJServer cluster, by specifying the former when creating the latter. For details, refer to "create-cluster subcommand".



Adding the Server Instance after IJServer Cluster Creation

Add the server instance to the predefined IJServer cluster. This operation can also be performed for an IJServer cluster that is running. For details, refer to "create-instance subcommand".



Automatic Assignment of Port Numbers

When the Server instance is added, if the port number defined in the settings is being used by another instance, then a new one is automatically assigned (*1) and the system property added to the server instance definition. For details on system property names and the logic for assigning port numbers, refer to "Properties Used when Creating and Updating Definitions".

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- "asadmin" - "create-cluster subcommand"
- "asadmin" - "create-instance subcommand"

*1 Port numbers are automatically assigned when the listener port setting for HTTP service is "\${HTTP_LISTENER_PORT}". If multiple instances are created and port numbers are to be changed for each instance, refer to "Listener port" in "7.8.3 HTTP Service Definition Items".

Deleting Server Instances

IJServer cluster server instances can be deleted separately.

This operation can be performed while the IJServer cluster is running, but the deletion target server instance must be stopped before it can be deleted.

If all server instances under the IJServer cluster are deleted, then it will not be possible to start the IJServer cluster.

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- "asadmin" - "delete-instance subcommand"

Messages

When the server instance create/delete operation completes normally, the following messages are output to the system log/event log.

Operation	Message
Creating the server instance	OM2017
Deleting the server instance	OM2018

For details on the messages, refer to "OM2000 to OM2099" in the "Messages that Contain "OM" in the Message ID" section.

4.5.4 Starting/Stopping/Displaying the Operational Status of the IJServer Cluster

Use the Interstage Java EE Admin Console or the `asadmin` command to start/stop/display the operational status of the IJServer cluster.

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- "`asadmin`" - "`start-cluster` subcommand"
- "`asadmin`" - "`stop-cluster` subcommand"
- "`asadmin`" - "`list-clusters` subcommand"

Normal Stop and Forced Stop

The IJServer cluster can be stopped using either of two methods: normal stop and forced stop.

Forced stop has the characteristics below:

- There is no wait until the application terminates. Applications that have been called from the client are also stopped without waiting for processing to complete.
- There is no lifecycle module stop processing.
- There is no processing to unbind connections pooled in each resource connection pool.

Since there is no recovery processing in forced stop, any remaining resources that were not recovered should be recovered individually. The same also applies when the server instance terminates abnormally for some reason.

For details on the impact when processing to unbind JDBC resource connections is not performed, refer to the database or JDBC driver manual. If Java DB is used, there is no problem, because the system resources will be recovered when the server instance stops.

For details on the impact when processing to unbind connector resource connections is not performed, refer to the resource adapter provider document.

Messages

When the IJServer cluster start/stop operation completes normally, the following messages are output to the system log/event log.

Operation	Message
Starting the IJServer cluster	OM1015
Stopping the IJServer cluster (normal stop)	OM1016
Stopping the IJServer cluster (by force)	OM1017

For details on the messages, refer to "OM1000 to OM1099" in the "Messages that Contain "OM" in the Message ID" section.

4.5.5 Starting/Stopping/Displaying the Operational Status of the Server Instance

Use the Interstage Java EE Admin Console or the `asadmin` command to start/stop/display the operational status of the server instance.

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- "asadmin" - "start-instance subcommand"
- "asadmin" - "stop-instance subcommand"
- "asadmin" - "list-instances subcommand"

Normal Stop and Forced Stop

The IJServer cluster can be stopped using either of two methods: normal stop and forced stop.

Forced stop has the characteristics below:

- There is no wait until the application terminates. Applications that have been called from the client are also stopped without waiting for processing to complete.
- There is no lifecycle module stop processing.
- There is no processing to unbind connections pooled in each resource connection pool.

Since there is no recovery processing in forced stop, any remaining resources that were not recovered should be recovered individually. The same also applies when the server instance terminates abnormally for some reason.

For details on the impact when processing to unbind JDBC resource connections is not performed, refer to the database or JDBC driver manual. If Java DB is used, there is no problem because the system resources will be recovered when the server instance stops.

For details on the impact when processing to unbind connector resource connections is not performed, refer to the resource adapter provider document.

Messages

When the server instance start/stop operation completes normally, the following messages are output to the system log/event log.

Operation	Message
Starting the server instance	OM1044
Stopping the server instance (normal stop)	OM1045
Stopping the server instance (by force)	OM1046

For details on the messages, refer to "OM1000 to OM1099" in the "Messages that Contain "OM" in the Message ID" section.

4.5.6 Recovering a "Partially Running" IJServer Cluster

By performing the IJServer cluster or server instance start operation for a "partially running" IJServer cluster, the server instance that is not running can be started and the IJServer cluster recovered so that it is "running" again.

Use the Interstage Java EE Admin Console or the asadmin command to recover the server instance.

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- "asadmin" - "start-cluster subcommand"
- "asadmin" - "start-instance subcommand"

Messages

When the IJServer cluster recovery operation completes normally, the following messages are output to the system log/event log.

Operation	Message
Recovery by starting the IJServer cluster	OM1015
Recovery by starting the server instance	OM1044

For details on the messages, refer to "OM1000 to OM1099" in the "Messages that Contain "OM" in the Message ID" section.

4.5.7 Automatic Start/stop of an IJServer Cluster

Automatic Start of an IJServer Cluster

The IJServer cluster can be made to start up automatically when the Interstage Java EE Node Agent service starts up. By enabling the automatic startup of this function and the Interstage Java EE Node Agent service, the IJServer cluster can be made to start up automatically when the OS starts up.

Define whether the IJServer cluster should automatically start in the Interstage Java EE Node Agent service.

For details, refer to "7.2 Interstage Java EE Node Agent Service Definition Items".



Note

If automatic start has been enabled for the IJServer cluster, startup processing for the Interstage Java EE Node Agent service will terminate normally even if the IJServer cluster fails to start. This means that the status of the IJServer cluster must be checked separately from the status of the Interstage Java EE Node Agent service.

Refer to "4.5.4 Starting/Stopping/Displaying the Operational Status of the IJServer Cluster" for information on how to check the status of the IJServer cluster.

Automatic Stop of an IJServer Cluster

When the Interstage Java EE Node Agent service is stopped, all IJServer clusters that have not stopped are stopped by force. Check the IJServer cluster status before stopping the Interstage Java EE Node Agent service.

4.5.8 Executing Operations at the Same Time

When multiple operations are executed for the same IJServer cluster at the same time, an error might be returned in one of them.

The results of competing operations per operation are explained below (these operations are executed in the sequence of 'operation 1' '> operation 2').

Competing Operations for Different Cluster Names

		Operation 2					
		Start cluster	Stop cluster (normal stop)	Stop cluster (by force)	Start instance	Stop instance (normal stop)	Stop instance (by force)
Operation 1	Start cluster	1:Start (normal start)	1:Start (normal start)	1:Start (normal start)	1:Start (normal start)	1:Start (normal start)	1:Start (normal start)
		2:Start (normal start)	2:Stop (normal stop)	2:Stop (normal stop)	2:Start (normal start)	2:Stop (normal stop)	2:Stop (normal stop)
	Stop cluster (normal stop)	1:Stop (normal stop)	1:Stop (normal stop)	1:Stop (normal stop)	1:Stop (normal stop)	1:Stop (normal stop)	1:Stop (normal stop)
		2:Start (normal start)	2:Stop (normal stop)	2:Stop (normal stop)	2:Start (normal start)	2:Stop (normal stop)	2:Stop (normal stop)
Stop cluster (by force)	1:Stop (normal stop)	1:Stop (normal stop)	1:Stop (normal stop)	1:Stop (normal stop)	1:Stop (normal stop)	1:Stop (normal stop)	
		2:Start (normal start)	2:Stop (normal stop)	2:Stop (normal stop)	2:Start (normal start)	2:Stop (normal stop)	2:Stop (normal stop)
Start instance		1:Start (normal start)	1:Start (normal start)	1:Start (normal start)	-		

		Operation 2					
		Start cluster	Stop cluster (normal stop)	Stop cluster (by force)	Start instance	Stop instance (normal stop)	Stop instance (by force)
		2:Start (normal start)	2:Stop (normal stop)	2:Stop (normal stop)			
	Stop instance (normal stop)	1:Stop (normal stop) 2:Start (normal start)	1:Stop (normal stop) 2:Stop (normal stop)	1:Stop (normal stop) 2:Stop (normal stop)			
	Stop instance (by force)	1:Stop (normal stop) 2:Start (normal start)	1:Stop (normal stop) 2:Stop (normal stop)	1:Stop (normal stop) 2:Stop (normal stop)			

Competing Operations for Different Instance Names that belong to Different Clusters

		Operation 2		
		Start instance	Stop instance (normal stop)	Stop instance (by force)
Operation 1	Start instance	1:Start (normal start) 2:Start (normal start)	1:Start (normal start) 2:Stop (normal stop)	1:Start (normal start) 2:Stop (normal stop)
	Stop instance (normal stop)	1:Stop (normal stop) 2:Start (normal start)	1:Stop (normal stop) 2:Stop (normal stop)	1:Stop (normal stop) 2:Stop (normal stop)
	Stop instance (by force)	1:Stop (normal stop) 2:Start (normal start)	1:Stop (normal stop) 2:Stop (normal stop)	1:Stop (normal stop) 2:Stop (normal stop)

Competing Operations for the Same Cluster Name

		Operation 2						
		Start cluster	Stop cluster (normal stop)	Stop cluster (by force)	Start instance	Stop instance (normal stop)	Stop instance (by force)	
Operation 1	Start cluster	1:Start (normal start) 2:Error	1:Start (normal start) 2:Error	1:Error 2:Stop (normal stop)	1:Start (normal start) 2:Error	1:Start (normal start) 2:Error	1:Start (normal start) 2:Error	
	Stop cluster (normal stop)	1:Stop (normal stop) 2:Error	1:Stop (normal stop) 2:Error	1:Error 2:Stop (normal stop)	1:Stop (normal stop) 2:Error	1:Stop (normal stop) 2:Error	1:Stop (normal stop) 2:Error	
	Stop cluster (by force)	1:Stop (normal stop) 2:Error	1:Stop (normal stop) 2:Error	1:Stop (normal stop) 2:Error	1:Stop (normal stop) 2:Error	1:Stop (normal stop) 2:Error	1:Stop (normal stop) 2:Error	
	Start instance	1:Start (normal start) 2:Error	1:Start (normal start) 2:Error	1:Error 2:Stop (normal stop)	-			
	Stop instance (normal stop)	1:Stop (normal stop) 2:Error	1:Stop (normal stop) 2:Error	1:Error 2:Stop (normal stop)				

		Operation 2				
		Start cluster	Stop cluster (normal stop)	Stop cluster (by force)	Start instance	Stop instance (normal stop)
	Stop instance (by force)	1:Stop (normal stop) 2:Error	1:Stop (normal stop) 2:Error	1:Stop (normal stop) 2:Error		

Competing Operations for the Same Instance Name that belongs to the Same Cluster

		Operation 2		
		Start instance	Stop instance (normal stop)	Stop instance (by force)
Operation 1	Start instance	1:Start (normal start) 2:Error	1:Start (normal start) 2:Error	1:Error 2:Stop (normal stop)
	Stop instance (normal stop)	1:Stop (normal stop) 2:Error	1:Stop (normal stop) 2:Error	1:Error 2:Stop (normal stop)
	Stop instance (by force)	1:Stop (normal stop) 2:Error	1:Stop (normal stop) 2:Error	1:Stop (normal stop) 2:Error

Competing Operations for Different Instance Names that belong to the Same Cluster

		Operation 2		
		Start instance	Stop instance (normal stop)	Stop instance (by force)
Operation 1	Start instance	1:Start (normal start) 2:Error	1:Start (normal start) 2:Stop (normal stop)	1:Start (normal start) 2:Stop (normal stop)
	Stop instance (normal stop)	1:Stop (normal stop) 2:Start (normal start)	1:Stop (normal stop) 2:Error	1:Stop (normal stop) 2:Stop (normal stop)
	Stop instance (by force)	1:Stop (normal stop) 2:Start (normal start)	1:Stop (normal stop) 2:Stop (normal stop)	1:Stop (normal stop) 2:Error

4.6 Deploying Applications

The following are explained in this section.

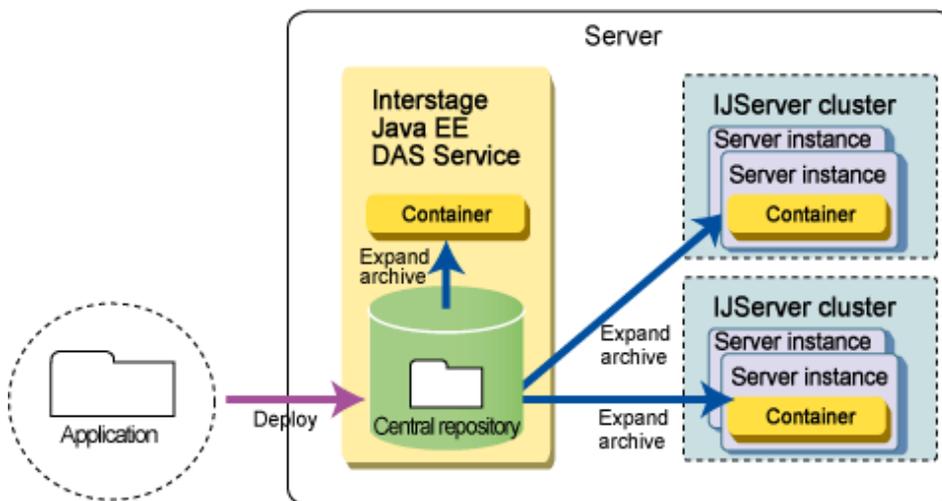
- Overview of Java EE Deployment
- Procedure for Deploying Applications
 - Verifying the Application
 - Deploying Applications that have been Expanded into a Directory
- Procedure for Undeploying Applications
- Managing deployed applications
 - Displaying a List of Deployed Applications
 - Setting the Environment for Applications that have already been Deployed
 - Reference to Deployment Descriptors of Applications that have already been Deployed

- Expanding Applications
- Canceling Application Expansion
- Displaying a List of Expanded Applications
- Changing the Activity State of Applications
- Updating deployed applications
 - Redeploying Applications
 - Auto-reloading Applications

4.6.1 Overview of Java EE Deployment

Applications that have been deployed to Java EE are stored in a central repository and then their directory structures are expanded to the target that was associated when the applications were deployed or when references to the applications were created. The applications are executed on the IJServer cluster or server instance container that has been specified as the target.

The Interstage Java EE DAS service, an IJServer cluster or a domain can be selected for the target, and multiple targets can be specified for a single application.



Note

- To operate Java EE applications via a web server, the Interstage JMX service must be started beforehand.
- If an application is deployed to a domain, the application will not be enabled. The application becomes enabled by expanding its directory structure to the target.
- If IJServer clusters are linked to web servers, it is not possible to deploy web applications with the same context route to multiple IJServer clusters linked to the same web server.
- If a JAR file that has not been defined in the deployment descriptor file is placed in the root directory for the application to be deployed, the application will be loaded by the Application class loader. This behavior is not supported, so do not place such JAR files in the root directory. For information on placement of JAR files, refer to "Class Loader Configuration".
- Multiple deploy/undeploy operations cannot be executed at the same time. If a new deployment/undeployment operation is submitted before the current deployment/undeployment operation returns, the new operation will wait for the completion of the current operation.
- Any error that occurs when deploying to a domain is output to the server.log of the Interstage Java EE DAS service. If an error then occurs after this when expanding to the target (when loading a class), the error is output to the server.log of the target destination IJServer cluster or Interstage Java EE DAS service. For this reason, please check if errors have been output to the server.log of the specified target after deployment. Do so because when deployment is performed by specifying the IJServer cluster or Interstage Java EE DAS service, errors not output by the GUI or command might occur.

4.6.2 Procedure for Deploying Applications

Use the following procedure to execute applications on Java EE.

1. Deploy an application to a single target.

Deploy an application. If there are problems with the deployed application, messages will be output and processing will be interrupted.

Example

```
asadmin deploy --name Sample --target IJServer001 sample.ear
```

Applications can also be deployed without an expansion destination target, by specifying "domain" for the target when the applications are deployed.

Example

```
asadmin deploy --name Sample --target domain sample.ear
```

2. Expand an application to multiple targets.

To expand an application to multiple targets, create a reference to the application for the new targets, in addition to Step 1 above.

Example

```
asadmin create-application-ref --target IJServer002 Sample
```

For details, refer to the Interstage Java EE Console Help or "[10.1 asadmin](#)".

- Interstage Java EE Admin Console
- The following subcommands of the asadmin command:
 - deploy
 - create-application-ref

4.6.3 Verifying the Application

The portability of the application can be determined by verifying the deployment module at the time of the deployment.

Enable this function if you want to enhance the portability of the developed application- this is disabled by default.

To verify the portability, perform the checks shown below. If a problem is detected, then deployment will fail.

Note

Even for applications that can run in Interstage Java EE environments, the deployment might fail and a verification error returned if the application is not recommended in the Java EE terms.

Check Content

- Java EE terms compliance check
- Deployment descriptor XML file validation check
- Compile error check using JSP precompile

- Application file configuration check
- Application server dependency function usage check

The verification result is output as shown below.

File name

[application_name][timestamp].txt, or [application-name][timestamp].xml

Output folder

Windows32/64

[Java EE common directory]\domains\interstage\logs\verifier-results

Solaris32/64 **Linux32/64**

[Java EE common directory]/domains/interstage/logs/verifier-results



Note

If the verification function is used repeatedly, numerous files might be generated in the verification result output destination directory which will use up disk space. For this reason, check for problems in the verification result. In cases where action has already been taken, delete the files manually if necessary.

4.6.4 Deploying Applications that have been Expanded into a Directory

You can deploy a deployment module that has already been expanded into a directory.

Use either the Interstage Java EE Admin Console or the `asadmin` command. For details, refer to the Interstage Java EE Console Help or "[10.1 asadmin](#)".

- Interstage Java EE Admin Console
- The following subcommand of the `asadmin` command:
 - `deploydir`



Note

- Applications that have already been expanded into a directory can be deployed only when the target domain is on the same machine.
- The function for deploying applications that have already been expanded into a directory can only be used with the following types of applications:
 - Enterprise applications
 - Web applications
 - EJB applications
 - Connector modules

The directory deployment function cannot be used with lifecycle modules or application client modules.

- Note the following points regarding the configuration of enterprise applications.

For the applications included in an enterprise application, expand the directory structure for each application and ensure that the head folder name for each application is as follows:

- J2EE application client (<application name>.jar) => <application name>_jar
- Web application (<application name>.war) => <application name>_war
- EJB application (<application name>.jar) => <application name>_jar
- Resource adapter (<application name>.rar) => <application name>_rar

Example

```
sample (enterprise application name)

+-sample_war (Web application)
| |
| +- expanded directory structure
+-sample_jar (EJB application)
| |
| +- expanded directory structure
+-sample.jar (jar file)
```

4.6.5 Procedure for Undeploying Applications

Use the following procedure to undeploy applications.

1. Undeploy an application on multiple targets.

If an application has been expanded to multiple targets, first cancel the expansion on all but one of the targets. Then perform Step 2.

Example

```
asadmin delete-application-ref --target IJServer002 Sample
```

2. Undeploy the application from a single target.

Cancel the application deployment with the application expanded on just one target.

Example

```
asadmin undeploy --target IJServer001 Sample
```

Alternatively, for applications that do not have an expansion destination target, cancel the deployment by specifying "domain" for the target.

Example

```
asadmin undeploy --target domain Sample
```

For details, refer to the Interstage Java EE Console Help or "[10.1 asadmin](#)".

- Interstage Java EE Admin Console
- The following subcommands of the asadmin command:
 - delete-application-ref
 - undeploy

4.6.6 Displaying a List of Deployed Applications

It is possible to display the Java EE applications that have already been deployed to Java EE.

Use either the Interstage Java EE Admin Console or the asadmin command. For details, refer to the Interstage Java EE Console Help or "[10.1 asadmin](#)".

- Interstage Java EE Admin Console
- The following subcommands of the asadmin command:
 - show-component-status
 - list-components
 - list-sub-components

4.6.7 Setting the Environment for Applications that have already been Deployed

Predeployed Java EE application can be configured and referenced using the Interstage Java EE Admin Console or the asadmin command set/get subcommand.

For details, refer to the Interstage Java EE Admin Console Help or "Application-related Definition Items".

4.6.8 Reference to Deployment Descriptors of Applications that have already been Deployed

The list of deployment descriptors included in applications that have already been deployed can be displayed.

The contents can be checked by selecting the deployment descriptor from this list.

The deployment descriptors that can be referenced are as follows:

- application.xml
- web.xml
- ejb-jar.xml
- ra.xml
- application-client.xml
- sun-application.xml
- sun-web.xml
- sun-ejb-jar.xml
- sun-application-client.xml

For details, refer to the Interstage Java EE Admin Console Help.

- Interstage Java EE Admin Console
 - deployment descriptor list
 - deployment descriptor reference

If the encoding used for saving the deployment descriptor is not supported in the locale, shown below, set for when the Interstage Java EE DAS service starts up, the characters may be garbled.

Windows32/64

[Control Panel] > [Zone (or Zone option)]



.....
 This explanation is for Windows(R) Server(R) 2003. The operation method depends on the OS that is used.

Solaris32/64 **Linux32/64**

"LANG" environment variable

If the characters are garbled, refer to the following deployment descriptors of applications that have already been deployed, using a text editor.

Windows32/64

- ear

```
[Java EE common directory]\domains\interstage\applications\j2ee-apps\[application name]
```

- war, jar, or rar stand-alone

```
[Java EE common directory]\domains\interstage\applications\j2ee-modules\[application name]
```

Solaris32/64 Linux32/64

- ear

```
[Java EE common directory]/domains/interstage/applications/j2ee-apps/[application name]
```

- war, jar, or rar stand-alone

```
[Java EE common directory]/domains/interstage/applications/j2ee-modules/[application name]
```

For details on Interstage directory configurations, refer to "IIServer cluster File Configuration".

4.6.9 Expanding Applications

Applications that have been deployed can be expanded to a target. Use either the Interstage Java EE Admin Console, or the create-application-ref subcommand of the asadmin command.

Example

```
asadmin create-application-ref --target IJServer001 Sample
```

For details, refer to the Interstage Java EE Console Help or "[10.1 asadmin](#)".

- Interstage Java EE Admin Console
- The following subcommand of the asadmin command:
 - create-application-ref

4.6.10 Canceling Application Expansion

Targets can be released from the expansion destinations for applications. Use either the Interstage Java EE Admin Console, or the delete-application-ref subcommand of the asadmin command.



Example

```
asadmin delete-application-ref --target IJServer002 Sample
```

For details, refer to the Interstage Java EE Console Help or "[10.1 asadmin](#)".

- Interstage Java EE Admin Console
- The following subcommand of the asadmin command:
 - delete-application-ref

4.6.11 Displaying a List of Expanded Applications

It is possible to display a list of applications that have been expanded to targets. Use either the Interstage Java EE Admin Console, or the list-application-ref subcommand of the asadmin command.

Example

```
asadmin list-application-refs IJServer001
```

For details, refer to the Interstage Java EE Console Help or "10.1 asadmin".

- Interstage Java EE Admin Console
- The following subcommand of the asadmin command:
 - list-application-refs

4.6.12 Changing the Activity State of Applications

It is possible to deactivate an application on a target and stop it from receiving requests by setting the activity state of the application that has been expanded to the target to "disabled".

- Enabled
Requests to the application will be received.
- Disabled
Requests to the application will be stopped. Application settings and other settings will be held unchanged.

The activity state of an application that has been expanded to targets is determined by the following two states.

- The activity state of the deployed application
The activity state can be checked with the get subcommand specifying "state", which is a definition item for the application.

Example

```
asadmin get applications.[application type].[application name].enabled
```

- The state of the association between the application and the target
This state can be checked with the get subcommand specifying "whether the application can be referenced", which is a definition item for the target.

Example

```
asadmin get [target].application-ref.[application name].enabled
```

The following table shows the relationship between these two states and the activity state of the application.

Activity state of the deployed application	State of the association between the application and the target	Activity state of the application
true	true	Enabled
true	false	Disabled
false	true	Disabled
false	false	Disabled

Note

- By setting the activity state of a deployed application to "false", the activity state of the application can be disabled on all expansion destination targets.

- The activity state of deployed applications is inherited before and after the service is restarted, but the state is always set to "true" after the application is redeployed.
 - The state of the association between the application and the target is inherited before and after the service is restarted or the application is redeployed.
-

Changing the Activity State of Applications

The activity state of an application can be changed using either the Interstage Java EE Admin Console or the enable and disable subcommands of the asadmin command. To make changes using commands, specify an IJServer cluster for the target.

Example

```
asadmin enable --target IJServer001 Sample
```

Changing the Activity State of Applications that have been Expanded to Multiple IJServer Clusters

To change the activity state of an application that has been expanded to multiple IJServer clusters, execute the changes by specifying "domain" for the target.

Example

```
asadmin enable --target domain Sample
```

For details, refer to the Interstage Java EE Console Help or "10.1 asadmin".

- Interstage Java EE Admin Console
- The following subcommands of the asadmin command:
 - enable
 - disable

4.6.13 Redeploying Applications

Applications that have been deployed can be updated for each deployment module.

Use either the Interstage Java EE Admin Console or the deploy subcommand of the asadmin command to update the application while still inheriting the following settings for the application that has been deployed.

- Interstage Java EE Admin Console
 - context-root (only for web applications)
 - The expansion destination targets for the application
 - The state of the association for the expansion destination application
 - The libraries to which the application refers (JAR files)
- deploy subcommand
 - The expansion destination targets for the application
 - The state of the association for the expansion destination application
 - The libraries to which the application refers (JAR files)

Note

If the redeployment is executed using the deploy subcommand, "context-root" will not be inherited.

Similarly, if the application is redeployed, the activity state of the deployed application will always be set to "true".

Example

```
asadmin deploy --force=true --target IJServer001 --name Sample sample.ear
```

To use the deploy subcommand to redeploy an application that has been expanded to multiple targets, specify "domain" for these targets.

Note

If anything other than "domain" is specified, an error will occur.

Example

```
asadmin deploy --force=true --target domain --name Sample sample.ear
```

When applications are redeployed from the Interstage Java EE Admin Console, of the settings that can normally be specified at deployment time, only the following settings can be specified.

- Execute verifier
- Precompile JSPs

To change settings other than these settings when redeploying an application from the Interstage Java EE Admin Console, first cancel the original deployment and then deploy the application again.

Modules can be redeployed without stopping the IJServer cluster, but if an application is swapped out during job operations, inconsistencies with the class file or some other problem may occur.

Either stop the IJServer cluster, or do this at a time when there are no requests for the business application, such as at night.

If there is a problem with the deployment module, messages will be output and processing will be interrupted.

Use either the Interstage Java EE Admin Console or the asadmin command.

For details, refer to the Interstage Java EE Console Help or "[10.1 asadmin](#)".

- Interstage Java EE Admin Console
 - There is a "Redeploy" link for each deployed application.
- The following subcommands of the asadmin command:
 - deploy

Refer also to "[1.3.4 Notes About Deployment](#)".

4.6.14 Auto-reloading Applications

It is possible to reload applications in the central repository, acting on those applications that have already been deployed to Java EE.

The applications that have already been deployed to Java EE are stored in the central repository in a format with the directory structure expanded. By combining this function with the function that updates class files in the central repository, applications can be updated at the class file level.

Use the following procedure to auto-reload applications.

1. Enable the auto-reload function for Java EE.

The auto-reload function is disabled by default - use either the Interstage Java EE Admin Console or the `asadmin` command to enable it.

- Interstage Java EE Admin Console
Stand-Alone instances > server(Admin Server)

- `asadmin` command

Use the `set` subcommand to change the following definition item to "true" (enabled).

```
server.admin-service.das-config.dynamic-reload-enabled
```

 Example

```
asadmin set server.admin-service.das-config.dynamic-reload-enabled=true
```

 Note

The Interstage Java EE DAS service must be restarted after the Java EE auto-reload function has been enabled.

2. Update the class files for an application that has been deployed.

The applications that have already been deployed to Java EE are stored in the following directory using a format where the deployment module has been expanded.

File storage location

Windows32/64

```
[Java EE common directory]\domains\interstage\applications\[application type]\[application name]
```

Solaris32/64 Linux32/64

```
[Java EE common directory]\domains\interstage\applications\[application type]\[application name]
```

3. Register the application with the auto-reload monitoring list.

Create a ".reload" file in the application directory. The application will then be registered for monitoring by the auto-reload processing.

 Example

Windows32/64

```
echo.> [Java EE common directory]\domains\interstage\applications\j2ee-apps\[application name]
.reload [Java EE common directory]\domains\interstage\applications\[application type]\[application name]
```

Solaris32/64 Linux32/64

```
touch [Java EE common directory]/domains/interstage/applications/j2ee-apps/[application name]/.reload [Java EE common directory]/domains/interstage/applications/[application type]/[application name]
```



Note

The content of the ".reload" file will not matter. To continue to make further updates to the application, update the timestamp for the ".reload" file.

For details on the definition items relating to auto-reloading applications, refer to "[10.19.3.4 Definition Items of the configs.config.admin-service](#)".



Note

- The auto-reload function can only be used with the Interstage Java EE DAS service (that is, only when just "server" is specified for the target).
- The auto-reload function can only be used with the following application types.
 - Enterprise applications
 - Web applications
 - EJB applications

The auto-reload function cannot be used with connector modules, lifecycle modules or application client modules.

- The status of applications that are updated by auto-reloading is always set to "enabled".

4.7 Preparatory Tasks for Web Container Operations

The preparatory tasks for web container operations are explained below.

4.7.1 Operations for Accessing Web Applications

This section explains the operation configurations for accessing web applications, and how to change these operation configurations.

When considering which operation configuration to use, consider the following options and combinations of options.

Operation Configurations Determined by Differences in Communication Paths

- Whether communications pass through a web server

Operation Configurations Determined by Differences in the Number of Concurrent Processes

- Whether the operation will use concurrent processes
- Whether the operation will be performed on multiple machines

4.7.1.1 Operation Configurations Determined by Differences in Communication Paths

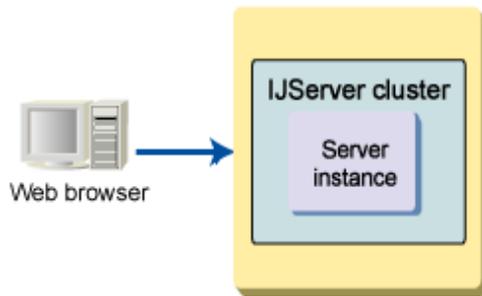
This section explains the operation configurations that are determined by differences in communication paths.

When a web application deployed to an IJServer cluster or an Interstage Java EE DAS service is accessed from a client such as a web browser, either of the following operation configurations can be used depending on differences in the communications path.

Operations where Communications do not Pass through a Web Server

In this type of operation configuration, clients (such as web browsers) access the web container either directly or via a load balancer.

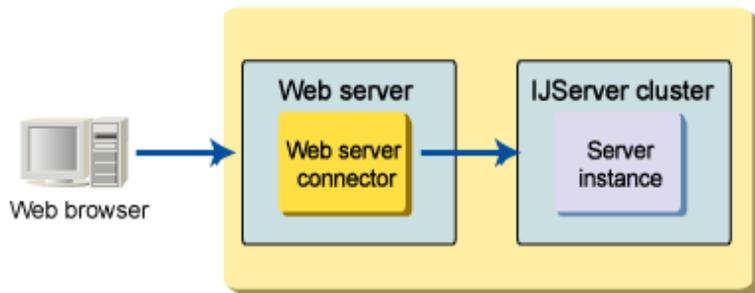
This is the operation configuration that is provided with a standard installation.



Operations where Communications Pass through a Web Server

In this type of operation configuration, clients (such as web browsers) access the web container via the web server.

Configurations where a load balancer is placed between the client and the web server also belong to this type of operation configuration.



For information on operations where communications pass through a web server, refer to "Preparations for Operations Performed via a Web Server".

Point

There are differences in available functions between operations performed via a web server and operations performed without passing through a web server.

Select the operation configuration that allows the required functions to be used.

If Java EE does not have a required function, use an operation configuration where communications pass through a web server, and use the functions provided by Interstage HTTP Server.

Note

- Specify the settings in "Operation mode for access to the Web container" under "[7.8.3 HTTP Service Definition Items](#)" as appropriate, to match the operation configuration (to match whether communications pass through a web server).
- For operations where communications pass through a web server, perform a custom installation by selecting the "Web server connector/J2EE" function.

4.7.1.2 Operation Configurations Determined by Differences in the Number of Concurrent Processes

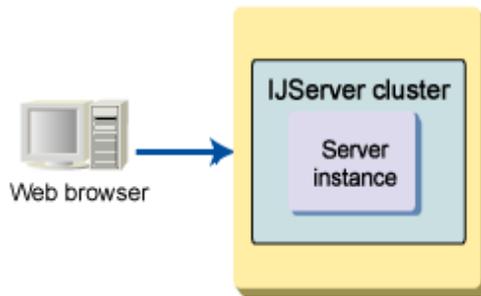
This section explains the operation configurations that are determined by differences in the number of processes.

4.7.1.2.1 Operations Involving a Single Process

This operation configuration is selected for development environments or for small-scale systems with a single job.

Operations where Communications Do Not Pass through a Web Server

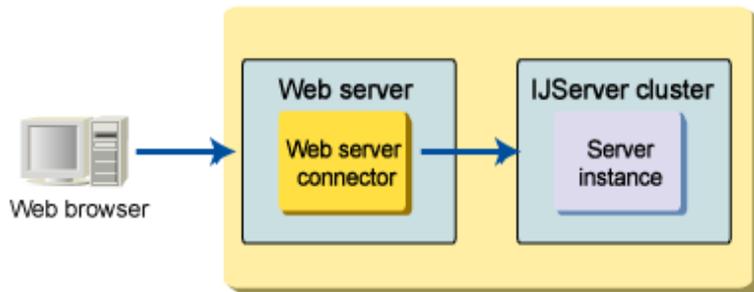
Select this operation configuration if there is no need to use functions that are specific to the web server.



By default, the port number used to access web applications that have been deployed on an IJServer cluster from a web browser is a sequential number starting from 28090, not 80. Change the port number for the HTTP listener if necessary.

Operations where Communications Pass through a Web Server

Select this operation configuration if it is necessary to use functions that are specific to the web server.



4.7.1.2.2 Operations based on Concurrent Processes on a Single Machine

This operation configuration is selected for small-scale systems with multiple jobs.

Operations based on concurrent processes are divided into two types. One is where multiple server instances are created in a single IJServer cluster, and the other is where multiple IJServer clusters are created.

For this operation configuration, a load balancer is normally required to allow web browsers to access the application without being aware of the concurrent processes.

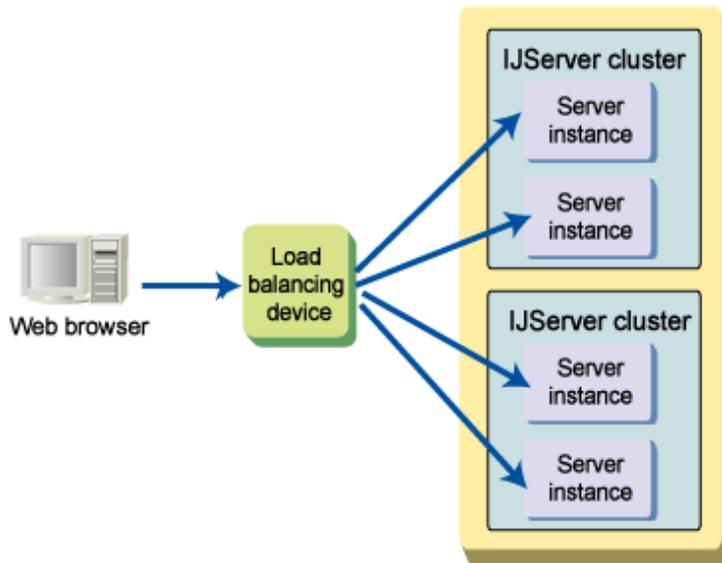
If there is no load balancer, the port number for each process must be specified when web browsers access the application.

For details on concurrent processes, refer to "IJServer Cluster Multiple Process Configurations".

Operations where Communications do not Pass through a Web Server

With this operation configuration, a load balancer for dispatching requests from web browsers to different processes must be prepared separately.

This operation configuration should not typically be selected for small-scale systems because of the need to prepare a load balancer separate to the machine on which the IJServer cluster is running.



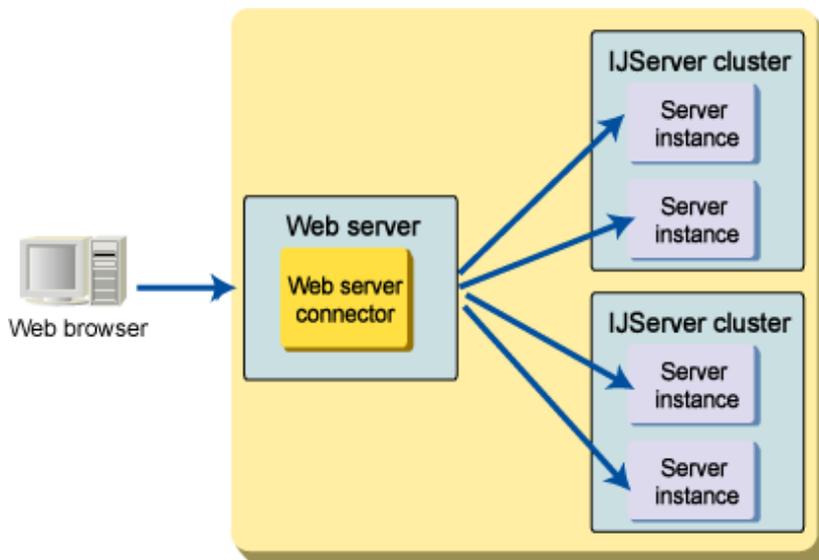
For information on the settings for the load balancer, refer to the load balancer manual.

Operations where Communications Pass through a Web Server

With this operation configuration, a web server (a web server connector) is required to dispatch requests from web browsers to different processes.

Select this operation configuration for small-scale systems with multiple jobs because there is no need to prepare a load balancer separate to the machine on which the IJServer cluster is running.

This operation configuration must also be selected when functions specific to the web server need to be used.



For details on dispatching requests via a web server connector, refer to "[4.9 Request Distribution Control by Web Server Connector](#)".

4.7.1.2.3 Operations involving Multiple Machines

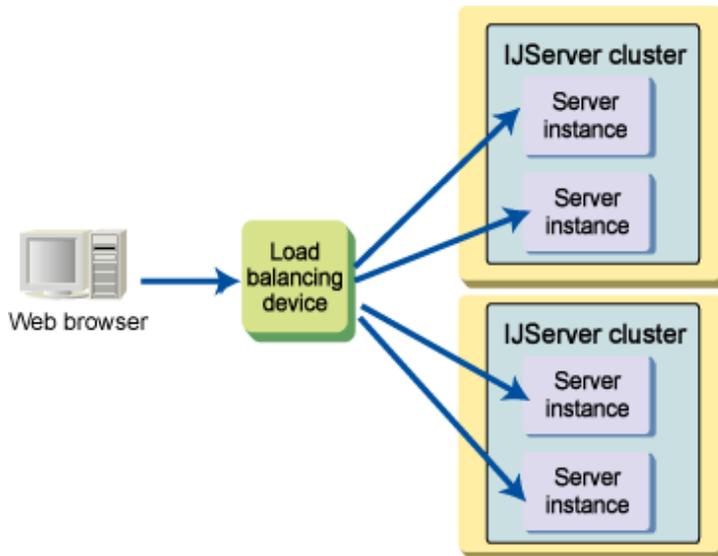
Select this operation configuration for medium-to-large-scale systems where the load is balanced by preparing multiple machines with the same configuration.

With this operation configuration, a load balancer is required in addition to the machines running IJServer clusters.

Operations where Communications do not Pass through a Web Server

Select this operation configuration if there is no need to use functions that are specific to the web server.

The load balancer must be set up so that requests can be dispatched to the appropriate server instance.

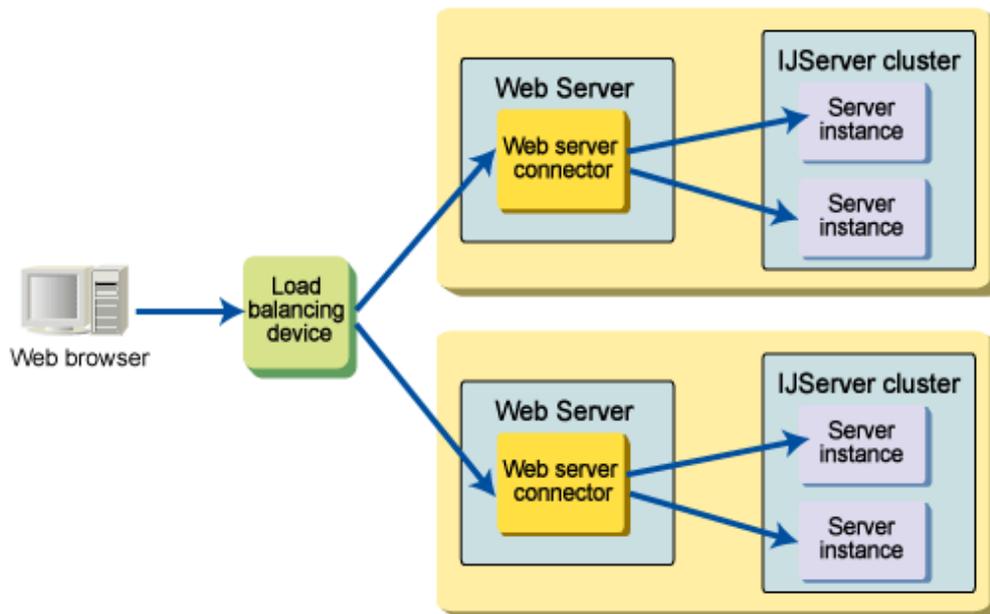


Operations where Communications Pass through a Web Server

Select this operation configuration if it is necessary to use functions that are specific to the web server.

The load balancer must be set up so that requests can be dispatched to the appropriate server.

Requests that have been dispatched to a server are further dispatched to server instances by the web server connector.

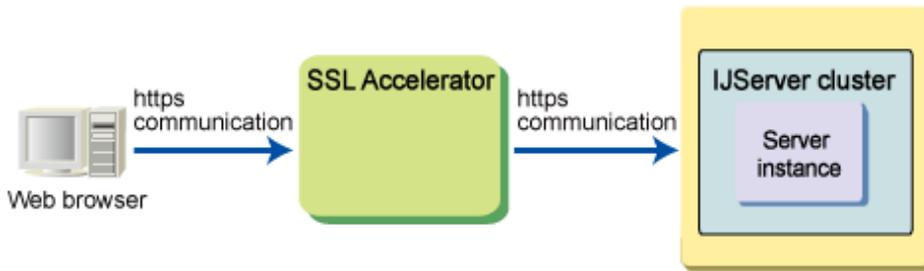


4.7.1.3 Operation Configurations that Use an SSL Accelerator

For operations that are performed without passing through a web server in environments where an SSL accelerator or load balancer is placed between the client and the web container, the request information that arrives at the web container (host name, port number and scheme) may not always be the same as the request destination information as seen from the client.

This means that redirect processing and servlet APIs that depend on request information may not run correctly.

The following diagram shows an example in which an SSL accelerator is placed between the client and the web container, and HTTPS is used between the client and the SSL accelerator and HTTP is used between the SSL accelerator and the web container.



If necessary, use the SSL accelerator function to add a HOST header (*1) or set up a redirection destination so that the intended behavior can be achieved.

*1 If a HOST header has been set up, the host name and port number can be acquired from the information in the HOST header, even if this header has not been added by the SSL accelerator function.

4.7.1.4 Changing the Operation Configuration for Accessing Web Applications

Operation configurations for accessing web applications deployed to an IJServer cluster or Interstage Java EE DAS service are divided into two types. One is where communications pass through a web server, and the other is where communications do not pass through a web server.

This section explains the setup method for changing the operation configuration.

Changing from Operations where Communications do not Pass through a Web Server to Operations where Communications Pass through a Web Server

Link the IJServer cluster or Interstage Java EE DAS service to the web server that it will pass through.

Change the linked web server using either the Interstage Java EE Admin Console or the `asadmin` command.

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- "`asadmin`" - "Subcommands - Category: Web Server Connector" - "`create-web-server-ref` Subcommand"

Note

- It is not possible to link to a web server if a number between 1 and 5000 has been specified for the HTTP listener port for the IJServer cluster or Interstage Java EE DAS service.

Change the settings for the "Listener port" in the "HTTP Service Definition Items" to a value between 5001 and 65535 before linking to the web server.

Change the settings for the "Listener port" in the "HTTP Service Definition Items" using either the Interstage Java EE Admin Console or the `asadmin` command.

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- "`asadmin`" - "Subcommands - Category: Referencing/Updating Definition Items" - "`set` Subcommand"

The HTTP listener port for the Interstage Java EE DAS service cannot be set from the Interstage Java EE Admin Console. Use the `asadmin` command to set this item.

- It is not possible to link IJServer clusters or Interstage Java EE DAS services where the same application has been deployed to a single web server.

Select separate web servers or virtual hosts.

If necessary, change the settings so that there is only a single target for a single application.

The above settings can be specified using either the Interstage Java EE Admin Console or the `asadmin` command.

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help

Changing the Linked Web Server:

- "[10.1.9.1 create-web-server-ref Subcommand](#)"
- "[10.1.9.2 delete-web-server-ref Subcommand](#)"

Changing the Virtual Host for the Linked Web Server:

- "[10.1.9.4 create-virtual-host-ref Subcommand](#)"
- "[10.1.9.5 delete-virtual-host-ref Subcommand](#)"

Changing the Targets for Applications:

- "[10.1.8.5 create-application-ref Subcommand](#)"
- "[10.1.8.6 delete-application-ref Subcommand](#)"

Changing from Operations where Communications Pass through a Web Server to Operations where Communications do not Pass through a Web Server

Cancel the linkage between the IJServer cluster or Interstage Java EE DAS service and the web server that it passes through.

Change the linked web server using either the Interstage Java EE Admin Console or the `asadmin` command.

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- "[10.1.9.2 delete-web-server-ref Subcommand](#)"

Note

-
- If the link to the web server is released, it will no longer be possible to use functions specific to the web server.
 - SSL communications are not supported for operations where communications do not pass through a web server.

If the "Security" item in the "[HTTP Service Definition Items](#)" has been enabled, disable this setting before releasing the link to the web server.

Specify the settings for the "Security" item in the "[HTTP Service Definition Items](#)" using either the Interstage Java EE Admin Console or the `asadmin` command.

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- "[10.1.4.2 set Subcommand](#)"
- If access is restricted by the following items in the "[HTTP Service Definition Items](#)", review the settings to match the environment after changing the operation configuration.
 - "Network address"
 - "Client address that receives requests"

The above settings can be specified using either the Interstage Java EE Admin Console or the `asadmin` command.

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- "[10.1.4.2 set Subcommand](#)"

Point

To change the operation configuration, review each of the definition items by referring to the following:

- "[7.8.3 HTTP Service Definition Items](#)"

- ["6.6 Web Container Tuning"](#)

The link to the web server may be set up or released automatically. In this case, also review the definition items.

For information on cases where the link to the web server is set up or released automatically, refer to the following sections.

- ["Installation \(Server Package\)"](#)
- ["4.8.2 Connecting the Web Server and the IJServer Cluster"](#)

4.8 Preparations for Operations Performed via a Web Server

This section explains the preparations required for operations where communications pass through a web server.

4.8.1 Setting the Web Server Environment

Web servers that support connection with the web container are as follows:

- Interstage HTTP Server

Windows32/64

- Microsoft(R) Internet Information Services

4.8.1.1 Setting the Interstage HTTP Server Environment

The method that is used for setting the environment for connecting the IJServer cluster and Interstage HTTP Server is explained in this section.

Communication from the web server to the web container is performed by the web server connector.

The web server connector runs on the web server as a DSO (Dynamic Shared Objects) module that uses Apache API, therefore it stops and starts when the web server stops and starts.

The web server connector environment settings must be configured so that the IJServer cluster and the web server are run on different machines. For details, refer to ["4.8.2.2 Running the Web Server and the IJServer Cluster on Different Machines"](#).



Point

The web server connector definition information shown below is set in the Interstage HTTP Server environment definition file (httpd.conf). When editing the Interstage HTTP Server environment definition file (httpd.conf) directly without using the Interstage Management Console, do not delete or edit this definition information.

Windows32/64

```
LoadModule ihs2_redirector2_module "C:/Interstage/F3FMjs5/gateway/ihs2/mod_ihs2_redirector2.so"
```

Solaris32/64 **Linux32/64**

```
LoadModule ihs2_redirector2_module "/opt/FJSVjs5/gateway/ihs2/mod_ihs2_redirector2.so"
```

4.8.1.2 Setting the Microsoft(R) Internet Information Services 6.0 Environment

Windows32/64

The method that is used for setting the environment for connecting the IJServer cluster and Microsoft(R) Internet Information Services 5.0/6.0 is explained in this section.

The Microsoft(R) Internet Information Services web server connector runs on the web server as an embedded ISAPI filter/extension that uses ISAPI API, therefore it stops and starts when the web server stops and starts.

The web server connector environment settings must be configured so that the IIServer cluster and the web server are run on different machines. For details, refer to "4.8.2.2 Running the Web Server and the IIServer Cluster on Different Machines".

Point

.....

In the Microsoft(R) Internet Information Services web server connector, the same behavior is repeated by referencing the Interstage HTTP Server web server connector settings when the web server name is "FJapache". For this reason, when using the Microsoft(R) Internet Information Services web server connector, the Interstage HTTP Server and web server connector settings must be configured using the Interstage Management Console in the same way as for using Interstage HTTP Server when the web server name is "FJapache".

.....

Note

.....

Interstage HTTP Server and Microsoft(R) Internet Information Services can exist together on the same machine when a different port number is set for each web server, however the web server connector of Interstage HTTP Server for which the web server name is "FJapache" cannot be used at the same time.

.....

Interstage and Microsoft(R) Internet Information Services are connected according to the following procedure:

1. [Installing Microsoft\(R\) Internet Information Services and Interstage](#)
2. [Preventing Interstage HTTP Server Automatic Startup](#)
3. [Restarting the IIS Admin Service Service or Server Machine](#)
4. [Setting the Microsoft\(R\) Internet Information Services Environment](#)
5. [Setting the Interstage Environment](#)

Installing Microsoft(R) Internet Information Services and Interstage

Install Microsoft(R) Internet Information Services and Interstage on the server machine.

Point

.....

Interstage HTTP Server must be installed in order to use Microsoft(R) Internet Information Services. If Interstage HTTP Server is not installed, Microsoft(R) Internet Information Services and Interstage cannot be connected.

Additionally, if Interstage HTTP Server with the web server name "FJapache" is deleted after Interstage HTTP Server is installed, Microsoft(R) Internet Information Services cannot be connected. In this case, Interstage HTTP Server with the name "FJapache" must be created again.

.....

Preventing Interstage HTTP Server Automatic Startup

Configure the settings for the prevention of Interstage HTTP Server automatic startup.

1. Stop Interstage HTTP Server
In the Interstage Management Console, click the [Service] > [Web Server] > [FJapache] > [Status] tabs, then click the [Stop] button to stop Interstage HTTP Server.
2. Prevent Interstage HTTP Server automatic startup
Prevent Interstage HTTP Server automatic startup. For details, refer to "Operation/Maintenance" - "Automatic Startup Settings" in the "Interstage HTTP Server Operator's Guide".

Note

.....

To allow the Interstage HTTP Server and Microsoft(R) Internet Information Services to exist together, start the Interstage HTTP Server web server that does not have the web server name "FJapache" separately when Interstage is restarted.

.....

Restarting the IIS Admin Service Service or Server Machine

When the IIS 5.0 process separation mode is used in Microsoft(R) Internet Information Services 6.0, restart the IIS Admin Service service or server machine.

- When the IIS 5.0 process separation mode is used in Microsoft(R) Internet Information Services 6.0

Restart the IIS Admin Service service. For the restart, log in with Administrator permissions, click [Control Panel] > [Services] or [Control Panel] > [Administrative Tools] > [Services] to start the service, select "IIS Admin Service", then select [Restart] from [Operate].

Setting the Microsoft(R) Internet Information Services Environment

Update the settings for running the Microsoft(R) Internet Information Services web server connector as an ISAPI filter/extension as shown below. The update is performed using the Microsoft(R) Internet Information Services Internet Services Manager.

- Register the web server connector so that it can run as an ISAPI filter/extension.

To set access limitations in the web application, define a security environment.

For details on the registration procedure, refer to the Microsoft(R) Internet Information Services manual.



Note

The Microsoft(R) Internet Information Services environment settings are not backed up/restored and imported/exported.

Stopping Microsoft(R) Internet Information Services

If Microsoft(R) Internet Information Services is running, stop it. To stop it, log in with Administrator permissions, click [Control Panel] > [Services] or [Control Panel] > [Administrative Tools] > [Services] to start the service, select "World Wide Web Publishing Service", then [Operate], then select [Stop] from the list.

Registering in the ISAPI Filter

Set up a web server connector in the "ISAPI filter" for the website that has been created under the [Website] node in the console tree.

Set the following web server connector file name for the filter execution file.

```
C:\Interstage\F3FMjs5\gateway\isapi\isapi_redirector2.dll
```

Registering in the ISAPI Extension

Create a "virtual directory" for the website that has been created under the [Website] node in the console tree.

The value that is set is as follows:

Local path	C:\Interstage\F3FMjs5\gateway\isapi
name(Alias)	F3FMjs5

For virtual directory access permissions, allow the execution of ISAPI applications.

Registering in Web Service Extensions

Add web server connector files set by registering in the ISAPI filter to the web service extension, then set "Allow" for the status.

Worker Process Settings

Set 1 for the maximum number of worker processes, and disable worker process recycling.

To disable worker process recycling, unselect all items using the [Properties] > [Recycle] tabs of the application pool that was set in the virtual directory that was created when registering in the ISAPI extension.

Access Limitations Settings

To set access limitations in the web application, set them for the web server connector.

Set them using "Virtual Directory" > "Directory Security".

Starting Microsoft(R) Internet Information Services

To start Microsoft(R) Internet Information Services, log in with Administrator permissions, click [Control Panel] > [Services] or [Control Panel] > [Administrative Tools] > [Services] to start the service, select "World Wide Web Publishing Service", then [Operate], then select [Start] from the list.

Note

To run Interstage Application Server on Windows Server(R) x64 Editions (32-bit compatible), enable 32-bit mode for the operation. To enable 32-bit mode, execute the following command from the command prompt.

```
cscrip %SystemDrive%\inetpub\AdminScripts\adsutil.vbs set w3svc/AppPools/Enable32bitAppOnWin64 1
```

Setting the Interstage Environment

For the setting (IIServer cluster creation, web application deployment) of the Interstage environment, the same operation as for Interstage HTTP Server is performed using the Interstage Java EE Admin Console.

When Interstage HTTP Server is used however, differences with Microsoft(R) Internet Information Services are as follows.

- When Microsoft(R) Internet Information Services is used, the web server connector cannot be set/used for more than one website on the same machine. Additionally, the web server virtual host cannot be set in the Interstage HTTP Server settings/used using the Interstage Management Console.
- The web server settings are performed using Internet Services Manager, provided in Microsoft(R) Internet Information Services.

Note

- In order to be able to use SSL for communication between the web server connector and the web container, users that execute Microsoft(R) Internet Information Services must have Administrators permissions that allows them to access the Interstage certificate environment. To use the SSL functionality as a user with general permissions, select the Interstage certificate environment directory in Explorer, then access permissions can be added by adding users or groups in the [Security] tab window of the [Properties] menu. Set users or groups that are added so that they have [Full Control].

For details on access permissions for the Interstage certificate environment, refer to "Setting and Use of the Interstage Certificate Environment" and "Setting up Access Permissions in the Interstage Certificate Environment" in the "Security System Guide".

Assign Full Control to general user permissions for the web server connector log output directory and web server connector log file.

- When the WorkUnit is created, "FJapache" must be selected as the web server. If "FJapache" is not selected, or the web server is changed from "FJapache" in the WorkUnit environment settings, the Microsoft(R) Internet Information Services web server connector cannot be used.

4.8.1.3 Setting the Microsoft(R) Internet Information Services 7.0/7.5/8.0 Environment

Windows32/64

The method that is used for setting the environment for connecting the IIServer cluster and Internet Information Services 7.0/7.5/8.0 is explained in this section.

The Microsoft(R) Internet Information Services web server connector runs on the web server as an embedded ISAPI filter/extension that uses ISAPI API, therefore it stops and starts when the web server stops and starts.

The web server connector environment settings must be configured so that the IIServer cluster and the web server are run on different machines. For details, refer to "[4.8.2.2 Running the Web Server and the IIServer Cluster on Different Machines](#)".

Point

In the Microsoft(R) Internet Information Services web server connector, the same behavior is repeated by referencing the Interstage HTTP Server web server connector settings when the web server name is "FJapache". For this reason, when using the Microsoft(R) Internet

Information Services web server connector, the Interstage HTTP Server and web server connector settings must be configured using the Interstage Management Console in the same way as for using Interstage HTTP Server when the web server name is "FJapache".

Note

Interstage HTTP Server and Microsoft(R) Internet Information Services can exist together on the same machine when a different port number is set for each web server, however the web server connector of Interstage HTTP Server for which the web server name is "FJapache" cannot be used at the same time.

Interstage and Microsoft(R) Internet Information Services are connected according to the following procedure.

1. [Installing Microsoft\(R\) Internet Information Services and Interstage](#)
2. [Prevention of Interstage HTTP Server Automatic Startup](#)
3. [Setting the Microsoft\(R\) Internet Information Services Environment](#)
4. [Setting the Interstage Environment](#)

Installing Microsoft(R) Internet Information Services and Interstage

Install Microsoft(R) Internet Information Services and Interstage on the server machine.

Point

Interstage HTTP Server must be installed in order to use Microsoft(R) Internet Information Services. If Interstage HTTP Server is not installed, Microsoft(R) Internet Information Services and Interstage cannot be connected.

Additionally, if Interstage HTTP Server with the web server name "FJapache" is deleted after Interstage HTTP Server is installed, Microsoft(R) Internet Information Services cannot be connected. In this case, Interstage HTTP Server with the name "FJapache" must be created again.

Prevention of Interstage HTTP Server Automatic Startup

Configure the settings for the prevention of Interstage HTTP Server automatic startup.

1. Stop Interstage HTTP Server
In the Interstage Management Console, click the [Service] > [Web Server] > [FJapache] > [Status] tabs, then click the [Stop] button to stop Interstage HTTP Server.
2. Prevent Interstage HTTP Server automatic startup
Prevent Interstage HTTP Server automatic startup. For details, refer to "Operation/Maintenance" - "Automatic Startup Settings" in the "Interstage HTTP Server Operator's Guide".

Note

To allow the Interstage HTTP Server and Microsoft(R) Internet Information Services to exist together, start the Interstage HTTP Server web server that does not have the web server name "FJapache" separately when Interstage is restarted.

Setting the Microsoft(R) Internet Information Services Environment

Configure the settings to allow the web server connector to run on Microsoft(R) Internet Information Services. For operations after this, log in with Administrator permissions.

Note

The Microsoft(R) Internet Information Services environment settings are not backed up/restored and imported/exported.

Installing ISAPI Extensions and ISAPI Filters

- If using Microsoft(R) Internet Information Services 7.0/7.5

Select [Server Manager] > [Roles] > [Web Server (IIS)]; in "Role Services", click [Add Role Services], then in "Application Development", select "ISAPI Extensions" and "ISAPI Filters", click [Next], and then click [Install].

- If using Microsoft(R) Internet Information Services 8.0

Select [Server Manager] > [Dashboard] > [Add roles and features] to start the Add Roles and Features Wizard.

From "Installation Type", select "Role-based or feature-based installation", and then click [Next].

From "Server Selection", click [Next].

From "Server Roles", select "Web Server (IIS)". Add features if required. Click [Next].

From "Web Server Role (IIS)", click [Next].

From "Role Services", select "ISAPI Extensions" and "ISAPI Filters" under "Application Development", click [Next], and then click [Install].

Stopping the Service

- If using Microsoft(R) Internet Information Services 7.0/7.5

Select [Server Manager] > [Roles] > [Web Server (IIS)]; in "System Services" stop "World Wide Web Publishing Service" and "Windows Process Activation Service".

- If using Microsoft(R) Internet Information Services 8.0

Select [Server Manager] > [Dashboard].

In "Services", stop "World Wide Web Publishing Service" and "Windows Process Activation Service".

Adding the ISAPI Filter

Add the ISAPI filter according to the following procedure:

1. In IIS Manager, click [Site] > "Site Name", then double-click "ISAPI filter" to open the ISAPI filter window.
2. Click "Add" in the operation pane, enter the following values in the "Add ISAPI Filter" dialog box that is displayed, then click the [OK] button.

Filter name	F3FMjs5 (Optional value)
Executable file	C:\Interstage\F3FMjs5\gateway\isapi\isapi_redirector2.dll

Adding an Application

Add the application according to the following procedure:

1. In IIS Manager, click [Site], right-click "Site Name", then click "Add Application".
2. Enter the following values in the "Add Application" dialog box that is displayed, then click the [OK] button.

Alias	F3FMjs5
Application pool	DefaultAppPool or any application pool
Physical path	C:\Interstage\F3FMjs5\gateway\isapi

Note

The web server connector executes the URL rewrite process using the ISAPI filter. In Microsoft(R) Internet Information Services, the settings must be configured so that both the original URL and the post-rewrite URL are executed in the same application pool. For this reason, configure the settings according to one of the examples below:

- To use the default application pool (DefaultAppPool) in the default site (Default Web Site), set it in the default site and in "F3FMjs5":

```
IIS Manager
+[Application Pool]
| +[DefaultAppPool]
+[Site]
  +[Default Web Site]:Set DefaultAppPool
  +[F3FMjs5]:Set DefaultAppPool
```

- To use any application pool in the default site (Default Web Site), set it in the default site and in "F3FMjs5" (in the example below we use IASPool):

```
IIS Manager
+[Application Pool]
| +[DefaultAppPool]
| +[IASPool]
+[Site]
  +[Default Web Site]:Set IASPool
  +[F3FMjs5]:Set IASPool
```

- To use any application pool in any site, set the application pool in the site and in "F3FMjs5" (in the example below we use IAS Web Site and IASPool):

```
IIS Manager
+[Application Pool]
| +[DefaultAppPool]
| +[IASPool]
+[Site]
  +[IAS Web Site]:Set IASPool
  +[F3FMjs5]: Set IASPool
```

3. In IIS Manager, click [Site] > "Site Name" > [F3FMjs5], then double-click "Handler Mapping" to open the Handler Mapping window.
4. Select "ISAPI-dll", then click "Edit" in the operation pane.
5. Enter the following values in the "Edit Module Map" dialog box that is displayed, then click the [OK] button.

Request path	*.dll
Module	IsapiModule
Executable file	C:\Interstage\F3FMjs5\gateway\isapi\isapi_redirector2.dll

6. In the dialog box that is displayed, click [Yes].
7. Select "ISAPI-dll" again, then click "Edit Functionality Access Permissions" in the operation pane.
8. In the "Edit Functionality Access Permissions" dialog box that is displayed, select all the checkboxes, and then click **OK**.

Worker Process Settings

Set the worker process according to the following procedure:

1. In IIS Manager, select [Application Pool] > "Application pool name selected when the above application was added", then click "Recycle settings" in the operation pane.

2. In the "Edit Application Pool Recycle Settings" dialog box that is displayed, unselect all the checkboxes then click [Next]. In the window box that is displayed, click the [Exit] button without selecting anything.
3. Select the application pool that was selected in 1. again, then click "Advanced Settings" in the operation pane.
4. Enter the following values in the "Advanced Settings" dialog box that is displayed, and then click **OK**.

Maximum number of worker processes	1
Enabling of 32-bit applications (*1)	True

*1 Only set this to run Interstage Application Server on Windows Server(R) x64 Editions (32-bit compatible).

Starting the Service

- If using Microsoft(R) Internet Information Services 7.0/7.5
Select [Server Manager] > [Roles] > [Web Server (IIS)]; in "System Services" start "World Wide Web Publishing Service" and "Windows Process Activation Service".
- If using Microsoft(R) Internet Information Services 8.0
Select [Server Manager] > [Dashboard].
In "Services", start "World Wide Web Publishing Service" and "Windows Process Activation Service".

Setting the Interstage Environment

For the setting (IIServer cluster creation, web application deployment) of the Interstage environment, the same operation as for Interstage HTTP Server is performed using the Interstage Java EE Admin Console.

When Interstage HTTP Server is used, however, differences with when Microsoft(R) Internet Information Services is used are as follows.

- When Microsoft(R) Internet Information Services is used, the web server connector cannot be set/used for more than one website on the same machine. Additionally, the web server virtual host cannot be set in the Interstage HTTP Server settings/used using the Interstage Management Console.
- The web server settings are performed using IIS Manager, provided in Microsoft(R) Internet Information Services.

Note

- In order to be able to use SSL for communication between the web server connector and the web container, users that execute Microsoft(R) Internet Information Services must have Administrators permissions that allows them to access the Interstage certificate environment. To use the SSL functionality as a user with general permissions, select the Interstage certificate environment directory in Explorer, then access permissions can be added by adding users or groups in the [Security] tab window of the [Properties] menu. Set users or groups that are added so that they have [Full Control].

For details on access permissions for the Interstage certificate environment, refer to "Setting and Use of the Interstage Certificate Environment" and especially "Setting up Access Permissions in the Interstage Certificate Environment" in Chapter 9 of the "Security System Guide".

- Assign Full Control to general user permissions for the web server connector log output directory and web server connector log file.
- When the IIServer cluster is created, "FJapache" must be selected as the web server. If "FJapache" is not selected, or the web server is changed from "FJapache" in the IIServer cluster environment settings, the Microsoft(R) Internet Information Services web server connector cannot be used.

4.8.2 Connecting the Web Server and the IIServer Cluster

The web server connector operation method explained in this section refers to when the web server and the IIServer cluster are run on the same machine and on different machines.

Point

To link a web server to an IJServer cluster, it may be necessary to specify the settings in "Operation mode for access to the Web container", depending on the operation configuration. In particular, this is necessary for the following operation configurations.

- When the web server and the IJServer cluster are running on different machines
- When communications pass through the web server and fault monitoring is performed on the web container by a load balancer or some other device

For information on the detailed settings, refer to "Operation mode for access to the Web container" under "[7.8.3 HTTP Service Definition Items](#)".

4.8.2.1 Running the Web Server and the IJServer Cluster on the Same Machine

To run the web server and the IJServer cluster on the same machine, configure the environment according to the procedure below.

For details on the web server and IJServer cluster linkage settings, refer "asadmin" > "Subcommands - Category: Web Server Connector".

1. Create the web server

Create the web server using the Interstage Management Console or `ihscreate` command.

2. Create the IJServer cluster and server instance

Create the IJServer cluster and server instance using the Interstage Java EE Admin Console, or the `create-cluster` sub-command and the `create-instance` sub-command of the `asadmin` command.

3. Deploy the application to the IJServer cluster

Deploy the application using the Interstage Java EE Admin Console, or the `deploy` sub-command of the `asadmin` command.

4. Start the IJServer cluster

Start the IJServer cluster using the Interstage Java EE Admin Console, or the `start-cluster` sub-command of the `asadmin` command.

5. Start the web server

Start the web server using the Interstage Management Console or `ihsstart` command.

6. Execute the application

Execute the application from the web browser.

Point

- Set the web server and the IJServer cluster so that they are linked automatically in the following cases:
 - 1 or more server instances were created when the IJServer cluster was created, and there was only one web server in the same machine.
 - A server instance was created for an IJServer cluster for which no server instances had already been created, and there was only one web server in the same machine.
 - The web server and IJServer cluster link is removed automatically in the following cases:
 - When the IJServer cluster is deleted.
 - When all the server instances have been deleted from the IJServer cluster.
-

Note

- When [Do not use] is set for [Run the Web server and the WorkUnit on the same machine] using either the Interstage Management Console or the `isj2eadmin` command (*1), the IJServer cluster connection destination information is displayed in the Interstage

Management Console Web server connector configuration window, but the configuration cannot be updated or deleted using the same means.

- Do not use the Interstage Management Console or the `isj2eeadmin` command to create the IJServer cluster connection destination information. If this is done, then the IJServer cluster configuration might become inconsistent with the Web server connector configuration, which might cause abnormal behavior in the application.

If this happens, delete the IJServer cluster connection destination information that was created, then set the web server to be linked to, using either the Interstage Java EE Admin Console or the `asadmin` command (*2).

*1 For details, refer to `isj2eeadmin` in the "J2EE Operation Commands" chapter of the Reference Manual (Command Edition)

*2 For details, refer to `asadmin`.

4.8.2.2 Running the Web Server and the IJServer Cluster on Different Machines

To run the web server and the IJServer cluster on different machines, configure the environment settings according to the procedure below.



- Use the same version of Interstage for the web server and the IJServer cluster.
- Before running the web server and the IJServer cluster on different machines, the setting shown below must be configured first. If this setting is not configured, it will not be possible to operate the web server connector.
 - In the Interstage Management Console of both the IJServer cluster machine and the web server machine, select the following:
System > Update System Settings > Detailed Settings > Servlet Service Settings > Run Web server and WorkUnit on the same machine > No

Note that the `isj2eeadmin` command can also be used to configure this setting. For details, refer to the Reference Manual (Command Edition).
- When linking multiple IJServer clusters to a single web server, you cannot link IJServer clusters on which the same application is deployed. Select a different web server or virtual host. Additionally, if necessary, change the setting so that there is only a single target for a single application.

A typical example of connecting the IJServer cluster and the web server on different machines is as follows:

1. Create the web server
Create the web server using the Interstage Management Console or `ihscreate` command.
2. Create the IJServer cluster and server instance
Create the IJServer cluster and server instance using the Interstage Java EE Admin Console, or the `create-cluster` subcommand and the `create-instance` subcommand of the `asadmin` command.
3. Deploy the application to the IJServer cluster
Deploy the application using the Interstage Java EE Admin Console, or the `deploy` subcommand of the `asadmin` command.
4. Create the web server connector connection destination information
Create the web server connector connection destination information using the web server machine Interstage Management Console or `isj2eeadmin` command.

Specify the information about the IJServer cluster that was created/deployed in steps 2. and 3 for the connection destination information settings items.

Check the IJServer cluster port number from the following definition item:
 - `${instanceName}.system-property.HTTP_LISTENER_PORT`
 - `${clusterName}.system-property.HTTP_LISTENER_PORT`
 - `Settings name.system-property.HTTP_LISTENER_PORT`

If a definition item has not been set or an identical definition item has been set more than once, then the port number that will actually be used by the IJServer cluster is determined in the priority of Server instance > IJServer cluster.

5. Settings for the operation mode for access to the web container

Using the Interstage Java EE Admin Console or the "set" subcommand of the asadmin command, set the operation mode for access to the web container.

- Property name: requestCheck
- Setting: webservers

For details, refer to "Operation mode for access to the Web container" under "[7.8.3 HTTP Service Definition Items](#)".

6. Start the IJServer cluster

Start the IJServer cluster using the Interstage Java EE Admin Console, or the start-cluster subcommand of the asadmin command.

7. Start the web server

Start the web server using the Interstage Management Console or ihsstart command.

8. Execute the application

Execute the application from the web browser.



Use the same version of Interstage on the web server and the IJServer cluster.

4.8.2.3 Web Server Connector Logs

Use the Interstage Management Console or the isj2eeadmin command to configure the web server connector log settings. For details, refer to the Interstage Management Console Help and "isj2eeadmin" in the "J2EE Operation Commands" chapter of the Reference Manual (Command Edition).

4.8.2.4 Combining the IJServer (J2EE) and the IJServer Cluster

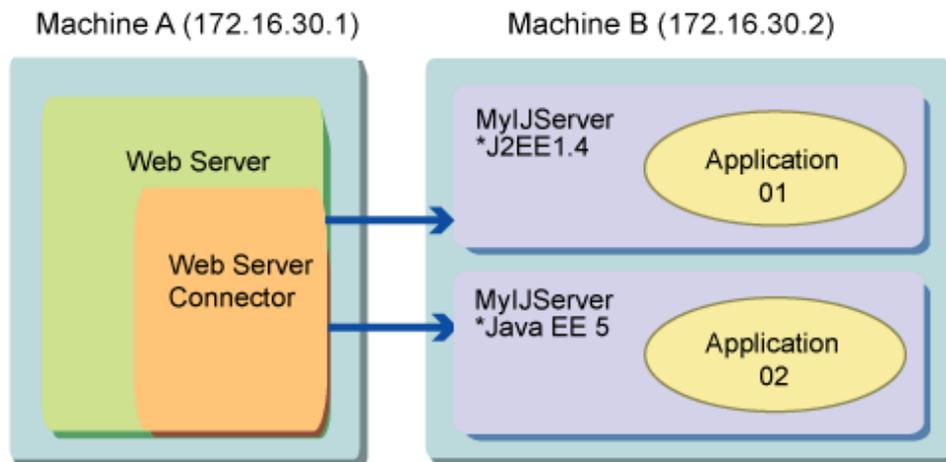
The IJServer (J2EE) and the IJServer cluster can be made to connect to the same web server.

Points that should be noted about combining the IJServer (J2EE) and the IJServer cluster are explained in this section.

When the IJServer (J2EE) and the IJServer Cluster Names are Duplicated

When the web server and the IJServer cluster are run on the same machine, IJServer clusters for which the name is duplicated cannot be made to connect to the same web server

When the web server and the IJServer cluster are run on different machines, the IJServer cluster for which the name is duplicated can be made to connect to the same web server by setting different names for the IJServer (J2EE) and the IJServer cluster when the web server connector connection destination information is created.



1. In the Interstage Management Console of machine A, click the [Web Server] > "Web server name" > [Web server connector] > [New] tabs, and create the information about the connection destination (IJSERVER (J2EE)).

Item name	Example of the value that is set
WorkUnit name	MyIJSERVER
Servlet container IP address:port number	172.16.30.2:9000

2. In the Interstage Management Console of machine A, click the [Web Server] > "Web server name" > [Web server connector] > [New] tabs, and create the information about the connection destination (IJSERVER cluster).

Item name	Example of the value that is set
WorkUnit name	MyIJSERVER_2
Servlet container IP address:port number	172.16.30.2:9001

Initialization Target when the -f Option of the isinit Command is Specified

When the -f option is specified in the isinit command and executed, the web server connector environment settings are initialized. At this time, both information about the connection to the IJSERVER (J2EE) and information about the connection to the IJSERVER cluster is initialized, however the IJSERVER cluster is not deleted.

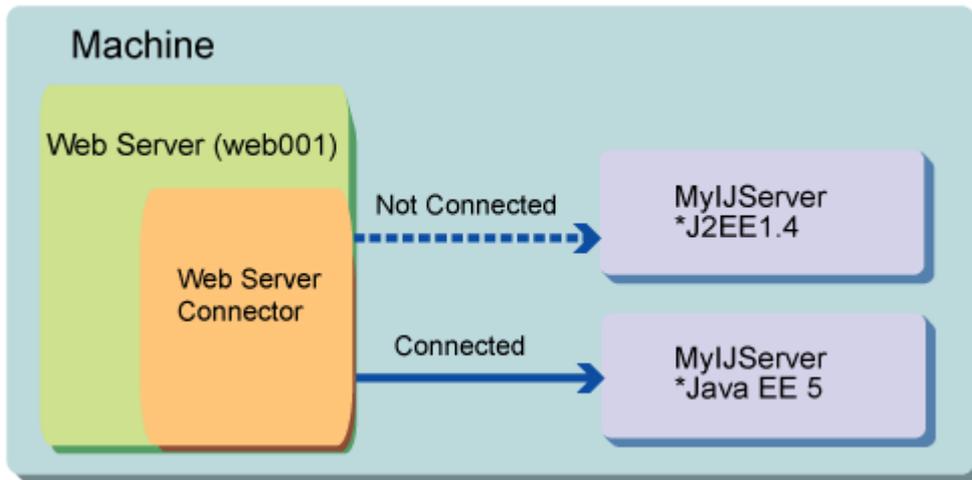
For this reason, requests are no longer distributed to the IJSERVER cluster, even when the IJSERVER cluster exists.

4.8.2.5 Changing the [Run the Web Server and the WorkUnit on the Same Machine] System Environment Setting

Points that should be noted when the [Run the Web server and the WorkUnit on the same machine] system environment setting is changed from [Do not use] to [Use] are explained in this section.

- The information about the connection to the IJSERVER cluster on the other machine that was set in the web server connector environment settings window is deleted.
- As shown below, in a machine in which there is only one web server, when the IJSERVER (J2EE) and the IJSERVER cluster have the same name and the IJSERVER cluster is connected to the web server on the same machine, an error occurs when the setting is changed from [Do not use] to [Use] and the operation fails.

In this case, either delete the IJSERVER (J2EE), or remove the IJSERVER cluster and the web server connection and then change the setting to [Use].



4.9 Request Distribution Control by Web Server Connector

This section explains the control for the distribution of requests in the web server connector. This control consists of control by commands and control by fault monitoring.

4.9.1 Distributing Procedure and Viewing the Status Using the Commands

The web server connector implements request distribution control over each IJSERVER cluster.

The user can use the following commands to change or display the current request distribution control mode (whether to enable or disable the distribution function of the web server connector) over IJSERVER clusters.

For instance, when periodic maintenance of a web application is performed or if a network failure or machine hardware error occurs, the relevant IJSERVER cluster (or the relevant machine) can be excluded from the request distribution targets. It can be restored to the distribution targets after completion of maintenance or failure recovery. This function enables stable and continuous system operation.

- Distribution operation command (ijsdispatchcont)

This command can be used to include an IJSERVER cluster in the request distribution targets or exclude it from the targets by specifying the IP address or the IP address and port number.

The setting made by the distribution operation command is retained even after the web server is rebooted or it terminates abnormally. To change the distribution mode, enter another distribution operation command.

- Distribution mode display command (ijsprintdispatchcont)

This command displays the distribution mode of each IJSERVER cluster (IP-address: port-number IJSERVER cluster-name).

Check in advance the IP address or 'IP address: port number' of the IJSERVER cluster to be specified in the distribution operation command. Use the distribution mode display command for this purpose. The distribution operation command requires only the IP address or 'IP address: port number' displayed by the distribution mode display command.

Refer to the Reference Manual (Command Edition) for details of each command.

Point

Requests are distributed from the web server connector to the IJSERVER cluster with the lowest number of requests currently being processed. However, if session management is used in a web application, the following requests are distributed to the IJSERVER cluster in which the session was created.

Examples of operational patterns are shown below. Various operational patterns are available depending on the server machine configuration and command parameter specification method.

- [Pattern 1: Distribution Control for each Machine](#)

- [Pattern 2: Distribution Control for each IJServer Cluster\(1\)](#)
- [Pattern 3: Distribution Control for each IJServer Cluster\(2\)](#)
- [Pattern 4: Suppress of a Connection to the IJServer Cluster](#)

Pattern 1: Distribution Control for each Machine

For maintenance of a machine, or if a machine hardware error occurs, distribution to a specific machine can be controlled as follows:

A machine (machine 1) with IP address 123.123.123.110 and a machine (machine 2) with IP address 123.123.123.111 each consists of two IJServer clusters (IJServerA and IJServerB).

Web application ap101 is deployed to IJServerA and Web application ap102 is deployed to IJServerB.

Because machine 1 is to be stopped, IP address 123.123.123.110 needs to be excluded from the distribution targets:

```
ijdispatchcont OFF 123.123.123.110
```

ap101 and ap102, which were distributed to machines 1 and 2 for load distribution, now run on machine 2 alone.

When machine 1 is restored, use the following command to include it again in the distribution targets:

```
ijdispatchcont ON 123.123.123.110
```

Pattern 2: Distribution Control for each IJServer Cluster(1)

For maintenance of a web application, distribution to a specific IJServer cluster can be controlled as follows:

As with pattern 1, a machine (machine 1) with IP address 123.123.123.110 and a machine (machine 2) with IP address 123.123.123.111 each consists of two IJServer clusters (IJServerA and IJServerB).

Web application ap101 is deployed to IJServerA and Web application ap102 is deployed to IJServerB.

Because IJServerA on machine 1 is to be stopped, it needs to be excluded from the distribution targets:

```
ijdispatchcont OFF 123.123.123.110:9000
```

ap101, which was distributed to machines 1 and 2 for load distribution, now runs on machine 2 alone. ap102 remains distributed to machines 1 and 2.

When IJServerA on machine 1 is restored, use the following command to include it again in the distribution targets:

```
ijdispatchcont ON 123.123.123.110:9000
```

Pattern 3: Distribution Control for each IJServer Cluster(2)

If there are 2 or more IJServer cluster server instances, then the operation for the control of the distribution to the IJServer cluster for maintenance of the web application is as follows.

A machine (machine 1) with IP address 123.123.123.110 and a machine (machine 2) with IP address 123.123.123.111 each consists of two IJServer clusters (IJServerA and IJServerB).

2 IJServerA server instances are created, and 2 web containers (container a and container b) are started.

Web application ap101 is deployed to IJServerA and Web application ap102 is deployed to IJServerB.

Because IJServerA on machine 1 is to be stopped, it needs to be excluded from the distribution targets.

Execute as many distribution operation commands as there are web containers:

```
ijdispatchcont OFF 123.123.123.110:9000
ijdispatchcont OFF 123.123.123.110:9001
```

ap101, which was distributed to containers a and b of machines 1 and 2, now runs on containers a and b of machine 2 alone. ap102 remains distributed to IJServerB on machine 1 and IJServerB on machine 2.

When IJServerA on machine 1 is restored, use the following command to include it again in the distribution targets:

```
ijsdispatchcont ON 123.123.123.110:9000
ijsdispatchcont ON 123.123.123.110:9001
```

Pattern 4: Suppress of a Connection to the IJServer Cluster

For maintenance of a web application while one machine is used for the IJServer cluster, a connection to the IJServer cluster can be suppressed as follows:

A machine (machine 1) with IP address 123.123.123.110 consists of two IJServer clusters (IJServerA and IJServerB).

Web application ap101 is deployed to IJServerA and Web application ap102 is deployed to IJServerB.

Because IJServerA on machine 1 is to be stopped, it needs to be excluded from the distribution targets.

```
ijsdispatchcont OFF 123.123.123.110:9000
```

ap101, which had only IJServer cluster as the distribution target, can no longer work for processing. ap102 can still work with IJServerB.



Note

If a web application such as ap101 has no distribution target, HTTP status code 503 (Service Temporarily Unavailable) is returned to the web browser when a request is issued.

When IJServerA on machine 1 is restored, use the following command to include it again in the distribution targets.

```
ijsdispatchcont ON 123.123.123.110:9000
```

4.9.2 Monitoring Web Server Connector Faults



Note

This function can be used with the following products:

- Interstage Application Server Enterprise Edition
- Interstage Application Server Standard-J Edition
- Interstage Application Server Enterprise Edition bundled Web Package

This feature cannot be used in the Standard-J Edition bundled Web Package.

The Web Package is not provided for 64-bit products.

When a balancing operation is executed for IJServer cluster and the web server that have been separated on different server machines, you can monitor the operation status of the IJServer cluster machine and the web container to stop an IJServer cluster machine or a faulty web container from being distributed automatically, or to make it possible for an IJServer cluster machine or a web container that has recovered from a fault to be distributed automatically.

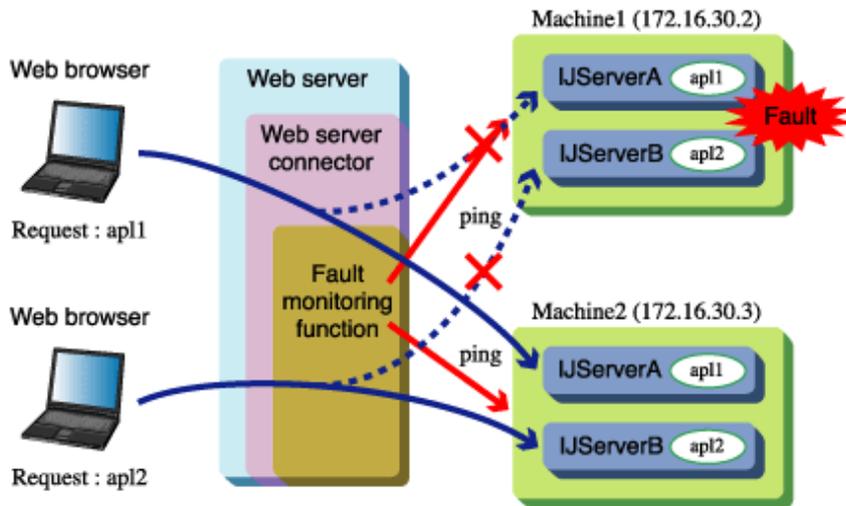
When the web server connector fault monitoring function is used to stop an IJServer cluster machine or a web container from being distributed, the web server connector stops the distributing of requests.

Fault Monitoring Method

The method of fault monitoring function are as follows:

ping monitoring

This issues a ping (ICMP ECHO) to the IP address of the IJServer cluster machine, and monitors the operation status while checking for the presence of responses (ICMP ECHO REPLY).

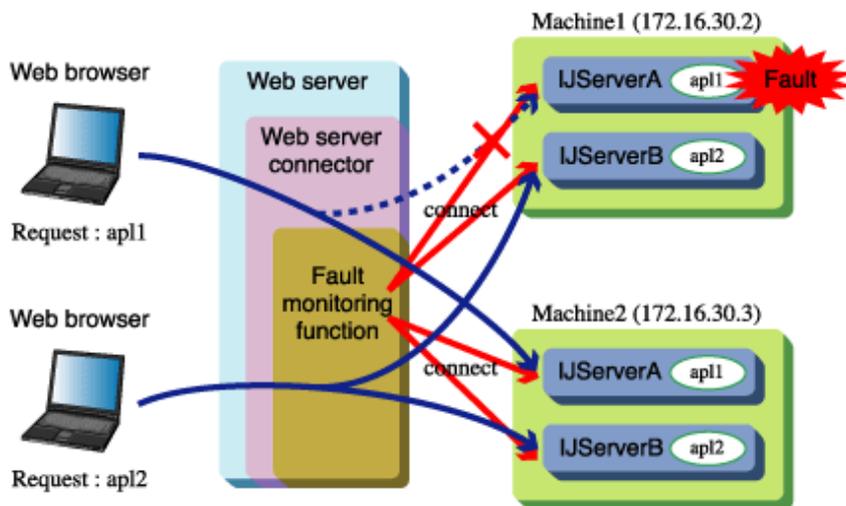


For example, as shown in the figure above, the fault monitoring function issues regular (such as every 60 seconds) pings to the IP addresses of machine 1 and machine 2 and monitors whether there is a response. If the ping response stops because of a fault in the hardware of machine 1, machine 1 is stopped from being distributed automatically, the web server connector stops the distributing of requests to machine 1.

If a ping response is returned after the machine that failed is repaired, machine 1 is again distributed automatically, and the web server connector starts the distributing of requests to machine 1 again.

Port monitoring

The web container monitors the web container operation status for the TCP port that receives the request, depending on the availability of the TCP connection using connect of socket.



For example, as shown in the figure above, the monitoring function issues regular (such as every 60 seconds) connects to the TCP port that waits for requests from the web container that is opened on machine 1 and machine 2, and monitors whether it is possible to connect. By stopping IJServer cluster A of machine 1, the web container closes the TCP port that is waiting for the request, and TCP connection is no longer possible by connect. Machine 1 is stopped from being distributed automatically, and the web server connector stops the distributing of requests to the IJServer cluster A web container of machine 1.

If IJServer cluster A is restarted, and TCP connection is made possible again, machine 1 is again distributed automatically, and the web server connector starts the distributing of requests to the IJServer cluster A web container of machine 1 again.

Advance Preparation

Make the following settings to use the fault monitoring function.

Operating procedure for separating IJServer cluster and the web server

The fault monitoring function can only be used for operation in a configuration in which IJServer cluster and the web server have been separated. Using a separate Interstage Management Console for the web server machine, click the [System] > [Environment Settings] tabs and specify the web server and IJServer cluster machines to be separated. The isj2eadmin command can also be used to implement these settings. For details, refer to the Reference Manual (Command Edition).

Settings Items

To make the settings for the fault monitoring function, click the [Services] > [Web Server] > [Web Server name] > [Web Server Connector] > [Fault Monitoring Settings] tabs. The isj2eadmin command can also be used to implement these settings. For details, refer to the Reference Manual (Command Edition).

The settings items are as follows:

Item name	Meaning
Monitoring Method	Select one of the following monitoring methods: <ul style="list-style-type: none"> - No Monitoring The fault monitoring function is not used. - Ping The operation status of the IJServer cluster machine is observed using ping. - Port The operation status of the IJServer cluster machine is observed using ping, operation status of the Servlet container is observed using connect.
Monitoring Interval	Set the interval for monitoring operation status using ping monitoring or port monitoring.
Response Wait Time	Set the wait time for a response after ping or connect has been issued to the IJServer cluster machine. If there is no response, reissue the number of pings or connects that is set as the retry count for a fault. If there are no responses, it can be assumed that there has been a fault.
Retry Count	Set the retry count for when the wait time for a response after ping or connect has been issued to the IJServer cluster machine is exceeded.
Startup Wait Time	Set the startup wait time for the fault monitoring function if it does not start up with the web server connector. If the fault monitoring function does not start up before this time is exceeded, the web server connector starts up without the fault monitoring function. If the web server connector is running without using the fault monitoring function, the web server connector might distribute requests from the client to a faulty IJServer cluster machine or Servlet container.

Examples of Preparation before Operation

This section contains examples of how to execute the following types of operation:

- Monitoring the operation status of two IJServer cluster machines in a balancing configuration
- Monitoring the operation status of an IJServer cluster machine and a web container in a balancing configuration

Monitoring the Operation Status of two IJServer cluster Machines in a Balancing Configuration

[Requirements]

Server machine A (IP Address: 172.16.30.1)	Web server must be running
Server machine B (IP Address: 172.16.30.2)	IJServer cluster must be running
Server machine C (IP Address: 172.16.30.3)	IJServer cluster must be running

[Setting procedure]

1. On server machine B, create an IJServer cluster.
2. On server machine C, create an IJServer cluster.
3. Using the Interstage Management Console for server machine A, click the [Services] > [Web Server] > [Web Server name] > [Web Server Connector] > [Create New] tabs, and create connection information for the following settings:

Item Name	Setting Value Example
WorkUnit name	MyIJServer
IP address for Servlet container : Port number	172.16.30.2:28090 172.16.30.3:28090

4. Using the Interstage Management Console for server machine A, click the [Services] > [Web Server] > [Web Server name] > [Web Server Connector] > [Fault Monitoring Settings] tabs, and make the following settings for the fault monitoring function:

Item Name	Setting Value Example
Monitoring Method	ping monitoring
Monitoring Interval	60
Response Wait Time	10
Retry Count	3

5. Using the Interstage Management Console for server machine A, click the [Services] > [Web Server] [Web Server name] > [status] tabs, and reboot the web server.

Monitoring the Operation Status of an IJServer cluster Machine and a Web Container in a Balancing Configuration

[Requirements]

Server machine A (IP Address: 172.16.30.1)	Web server must be running
Server machine B (IP Address: 172.16.30.2)	IJServer cluster must be running
Server machine C (IP Address: 172.16.30.3)	IJServer cluster must be running

[Setting Procedure]

1. On server machine B, create two IJServer cluster:
2. On server machine C, create two IJServer cluster WorkUnits with the following settings:
3. Using the Interstage Management Console for server machine A, click the [Services] > [Web Server] > [Web Server name] > [Web Server Connector] > [Create New] tabs, and create two connections with the following settings:

Connection 1

Item Name	Setting Value Example
WorkUnit name	MyIJServer1
IP address for Servlet container : Port number	172.16.30.2:28090 172.16.30.3:28090

Connection 2

Item Name	Setting Value Example
WorkUnit name	MyIJServer2
IP address for Servlet container : Port number	172.16.30.2:28091 172.16.30.3:28091

- Using the Interstage Management Console for server machine A, click the [Services] > [Web Server] > [Web Server name] > [Web Server Connector] > [Fault Monitoring Settings] tabs, and make the following settings for the fault monitoring function: If port monitoring is selected, all the servers in 'Servlet container IP address:Port number' of step 3 above are monitored.

Item Name	Setting Value Example
Monitoring Method	port monitoring
Monitoring Interval	60
Response Wait Time	10
Retry Count	3

- Using the Interstage Management Console for server machine A, click the [Services] > [Web Server] [Web Server name] > [status] tabs, and reboot the web server.

Viewing the Operation Status

The following command can be used to display the operation status of the distribution destination IJServer cluster in the web server machine. Refer to Reference Manual (Command Edition) for details of the command:

```
svmondspsstat
```

Viewing the Status of all IJServer Clusters

Execute the svmondspsstat command to view the operation status of all balancing IJServer clusters. There is no need to specify an option.

Conditions:

- Distributing is made to 2 IJServer clusters, the IJServer cluster names of which are MyIJServer1 and MyIJserver2
- The IP address and port number of the distributing destination Servlet container are as follows:
 - 172.16.30.2:9000
 - 172.16.30.3:9000
 - 172.16.30.2:9001
 - 172.16.30.3:9001
- The fault monitoring method is port monitoring
- Only 172.16.30.2:9001 in MyIJServer2 is faulty

If the conditions are as shown above, the following contents are displayed:

```
Status IP Address : Port Number : WorkUnit Name : WebServer Name
-----
ACTIVE 172.16.30.2:9000           :MyIJServer1      : FJapache
ACTIVE 172.16.30.3:9000           :MyIJServer1      : WEB001
DOWN   172.16.30.2:9001           :MyIJServer2      : FJapache
ACTIVE 172.16.30.3:9001           :MyIJServer2      : WEB001
```

Viewing the Status of a Specific IJServer Cluster

As shown below, specify the WorkUnit name set in 'WorkUnit name' of the web server connector and then execute the command to view the operation status of a specific IJServer cluster.

Example

```
svmondspsstat -i MyIJServer1
```

Conditions:

- Distributing is made to 2 IJServer clusters, the IJServer cluster names of which are MyIJServer1 and MyIJserver2
- The IP address and port number of the distributing destination Servlet container are as follows:
 - 172.16.30.2:9000

- 172.16.30.3:9000
- 172.16.30.2:9001
- 172.16.30.3:9001
- The fault monitoring method is port monitoring
- All the Servlet containers in MyIJSERVER1 are under operation

If the conditions are as shown above, the following contents are displayed:

Status	IP Address	Port Number	WorkUnit Name	WebServer Name
ACTIVE	172.16.30.2	:9000	:MyIJSERVER1	: FJapache
ACTIVE	172.16.30.3	:9000	:MyIJSERVER1	: WEB001

Note

Note the following points when using the fault monitoring function:

- All balancing servers that are set using the web server connector 'Servlet container IP address : Port number' item are monitored according to the conditions set for Fault Monitoring Settings. It is not possible to monitor according to conditions set for a separate IJSERVER cluster.
- If there is a firewall between the web server machine and the IJSERVER cluster machine, settings allowing passage of the ping from the web server machine IP address to the balancing IJSERVER cluster machine IP address must be made in the firewall.
- If the ping or connect response is delayed or lost because of high-intensity networking equipment along the route between the web server machine and the IJSERVER cluster machine, IJSERVER cluster might in fact determine that a fault has occurred even if there is operation status. Set appropriate values for 'Response Wait Time' and 'Retry Count' according to the status of the route between the web server and the IJSERVER cluster machine.
- The fault monitoring function cannot be used when IPCOM executes balancing between the web server machine and the IJSERVER cluster machine.

- If the fault monitoring function is enabled, or the fault monitoring function settings are changed, the obtaining of the distributing destination status starts at the point when the web server is started or rebooted.

Additionally, if a web server is not rebooted after the settings are changed, the obtaining of the distributing destination status starts when the first access from the client occurs, according to the changed settings.

- Requests might be distributed to the faulty distributing destination immediately after the web server is started until the fault monitoring function judges that it is faulty.

The time from the start of the obtaining of the distributing destination status until the judgment that it is faulty is [Response Wait Time x Fault Retry Count].

- If the web server is not rebooted after the fault monitoring function is enabled, or after the fault monitoring function settings are changed, requests might be distributed to the faulty distributing destination until the fault monitoring function judges that it is faulty, even if the distributing destination is faulty at the point when the first access from the client occurs.

The time from the start of the obtaining of the distributing destination status until the judgment that it is faulty is [Response Wait Time x Fault Retry Count].

- If a fault does actually occur in the distributing destination, requests might be distributed to the faulty distributing destination until the fault monitoring function judges that it is faulty.

The time from the actual occurrence of the fault in the distributing destination until the judgment that it is faulty is [Fault monitoring interval + Response Wait Time x Fault monitoring Retry Count].

- If a fault does actually occur in the distributing destination, requests might be distributed to the faulty distributing destination until the fault monitoring function judges that it is faulty.

In this case, the response to the request is delayed for about 1 minute, or the status code and '500 Internal Server Error' error message are notified from the web browser.

In this case, after failure detection is performed, the request can be distributed following the next access.

- Requests are not distributed to the distributing destination that is recovered from the point when the faulty distributing destination is recovered until the fault monitoring function judges that there is a recovery.

The time from the actual recovery of the distributing destination until the judgment that it has been recovered is [Fault monitoring interval].

- If a fault occurs on a server, then a 'fault-detected' message followed immediately by a second message notifying the user that recovery has started, may be output when:
 - fault monitoring is active
 - a fault monitoring condition changed, or
 - a server targeted for monitoring is dynamically added.

4.10 How to Operate Session Recovery

This section explains session recovery settings, tuning, and operations.



- Session recovery can be used in the products shown below. Note that it cannot be used in Web Package.
 - Session Registry Server
 - Interstage Application Server Enterprise Edition
 - IJServer cluster Session Registry Client
 - Interstage Application Server Enterprise Edition
 - Interstage Application Server Standard-J Edition

Solaris32/64 **Linux32/64**

- If the package installation was selected, note the following points:
 - The session registry server settings can only be configured in environments in which the Session Registry Server package (FJSVjssrs) has already been installed.
 - The Session Registry Client settings can only be configured in environments in which the Session Registry Client package (FJSVjssrc) has already been installed.
-

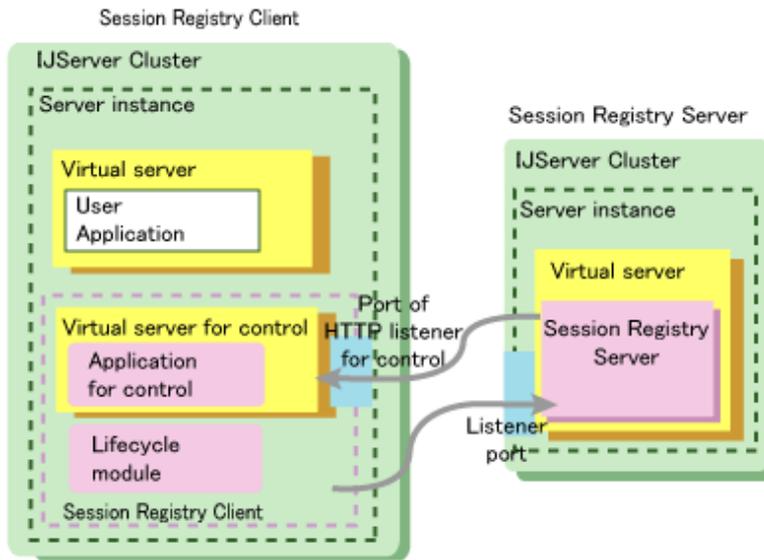
4.10.1 Overview of the Session Recovery Settings

This section explains the session recovery settings.

To use session recovery, the following settings are required:

- Session Registry Server Settings

- Session Registry Client Settings



Overview of the Session Registry Server Settings

The session registry server must be prepared in order to use session recovery. Deploy the session registry server that backs up the sessions to the IIS server cluster, so that session recovery can be used.

The session registry server settings are not that different from the normal IIS server cluster settings.

Only one server instance is created for the IIS server cluster, and only the session registry server is deployed.

The port for communication with the session registry client is set as the HTTP listener port.

For details on the session registry server settings, refer to "[4.10.2 Session Registry Server Settings](#)".

Overview of the Session Registry Client Settings

For the session registry client settings, in addition to the normal IIS server cluster settings, special settings for session recovery are also required. These settings are shown below.

- Create the virtual server for control

A dedicated virtual server is required to run the session registry client application for control.

- Create the HTTP listener for control

The HTTP listener for control is required to control the communication between the session registry client application for control and the session registry server.

- Deploy the application for control

The application for control is deployed to the virtual server for control.

- Lifecycle module settings

The lifecycle module is required to start run the Session Registry Client when the IIS server cluster starts.

- Enable the Availability Service

To use session recovery, the Availability for the Web Container must be enabled. The Availability Service is a service that provides session persistence. By enabling the Availability for the web container, it will be possible to persist session information and realize session recovery functionality such as session backup/recovery.

For details on the session registry client settings, refer to "[4.10.3 Session Registry Client Settings](#)".

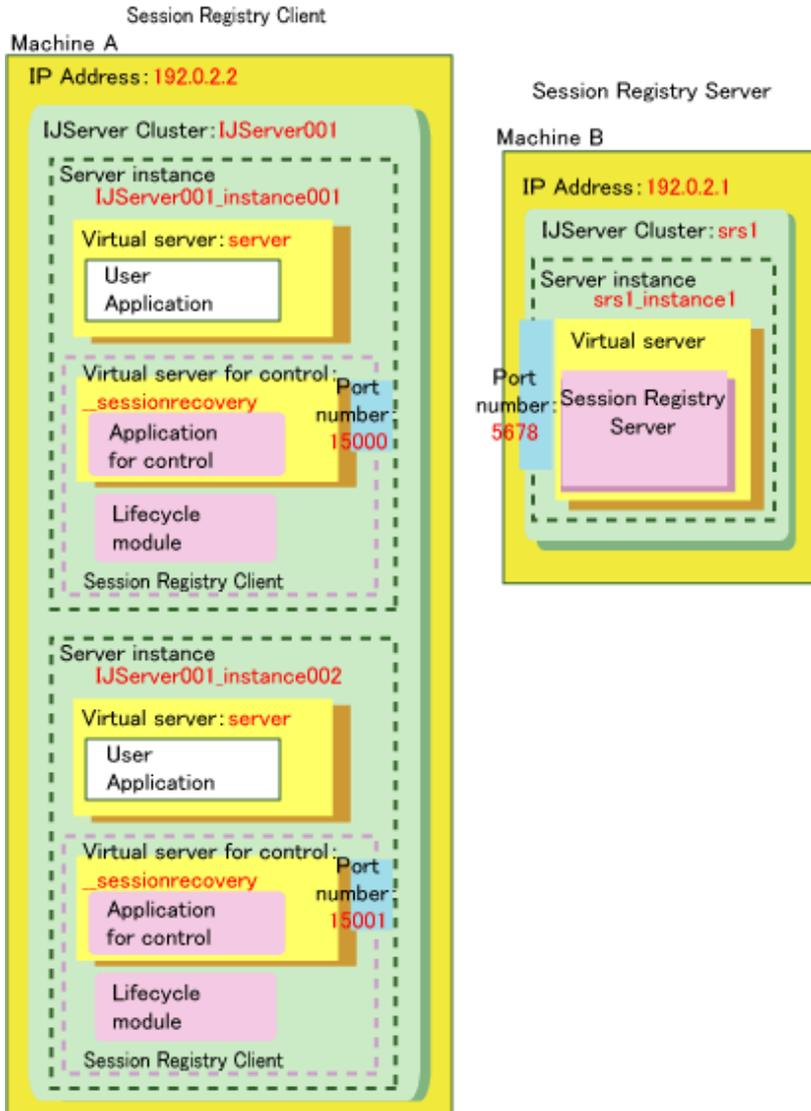
4.10.2 Session Registry Server Settings

This section explains the session registry server settings.

 Note

The IISServer cluster that runs the user application and the IISServer cluster that runs the session registry server are prepared separately.

An example that is used in the explanation for the setting method is as follows:



Example for Machine B

Item	Value
Machine IP address	192.0.2.1
IISServer cluster name	srs1
Server instance name	srs1_instance1
Listener port	5678

For an explanation on Machine A, refer to "4.10.3 Session Registry Client Settings".

Create the session registry server according to the following procedure:

1. Create the IISServer cluster for the Session Registry Server

Use one of the following methods to create the IISServer cluster for the session registry server:

- Using the Interstage Java EE Admin Console

For details, refer to "[4.10.2.1 Creating the IJServer Cluster for the Session Registry Server \(Using the Interstage Java EE Admin Console\)](#)".

- Using the asadmin command

For details, refer to "[4.10.2.2 Creating the IJServer Cluster for the Session Registry Server \(Using the asadmin Command\)](#)".

2. Deploy the Session Registry Server

Use one of the following methods to deploy the session registry server:

- Using the Interstage Java EE Admin Console

For details, refer to "[4.10.2.3 Deploying Session Registry Server \(Using the Interstage Java EE Admin Console\)](#)".

- Using the asadmin command

For details, refer to "[4.10.2.4 Deploying Session Registry Server \(Using the asadmin Command\)](#)".



Other web applications must not be deployed to the IJServer cluster for the Session Registry Server.

3. Session Registry Server Environment Settings

Use the Interstage Java EE Admin Console or the asadmin command to configure the JavaVM options for the session registry server environment settings.

For details on the setting method and content, refer to "[4.10.2.5 Session Registry Server Environment Settings](#)".

4.10.2.1 Creating the IJServer Cluster for the Session Registry Server (Using the Interstage Java EE Admin Console)

This section explains the method using the Interstage Java EE Admin Console to create the IJServer cluster for the session registry server.

1. Display the [Clusters] > [New] > [New Cluster window], specify the cluster name and instance name, and create one cluster and one server instance.

There is no need to set items that are not explained below.

2. Set the [Clusters] > [<cluster name>] > [Web Server Connector] item shown below.

Item name	Content
Web Server Connector	Clear the web server "FJapache" check box so that the session registry server does not link with the web server connector. Default value: Selected (if the web server connector has been installed)

3. Set the [Configurations] > [<cluster name>-config] > [JVM Settings] > [JVM Options] item shown below.

Item name	Content
JVM Options	Specify the session registry server heap size. For details on the values that are set, refer to "Session Recovery Tuning" in the "Java EE Application Tuning" chapter. Default value: <div style="display: flex; justify-content: space-around; align-items: center;"> Windows32/64 Solaris32 Linux32/64 </div> -Xmx256m <div style="display: flex; justify-content: space-around; align-items: center;"> Solaris64 </div> -Xmx512m

4. Set the [Configurations] > [<cluster name>-config] > [JVM Settings] > [Path Settings] item shown below.

Item name	Content
Classpath Suffix	Specify the module that is required to run the session registry server in the class path. <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">Windows32/64</div> C:\Interstage\F3FMjssrs\lib\jssrs-isjee.jar <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">Solaris32/64 Linux32/64</div> /opt/FJSVjssrs/lib/jssrs-isjee.jar

5. Set the [Configurations > [<cluster name>-config] > [HTTP Service] > [RequestProcessing] item shown below.

Item name	Content
Thread Count	Specify the maximum number of concurrent session registry server processes. For details, refer to " 4.10.4.2 Settings for Session Registry Server Concurrency ".

6. Set the [Configurations] > [<cluster name>-config] > [HTTP Service] > [HTTP Listeners] "default" items shown below.

Item name	Content
requestCheck (Additional Property)	Set the operation mode for access to the session registry server. The web container does not use a web server connector for connection to the session registry server, therefore specify "direct".
Network Address	Specify the session registry server IP address in the xxx.xxx.xxx.xxx format. To use all the valid IP addresses in the machine that runs the session registry server, specify '0.0.0.0'.
connectionUploadTimeout (Additional Property)	Specify the time until the communication is broken, when this session registry server has lost the communication from the target web container. For details, refer to " 4.10.4.1 Settings for each Timeout Value ".

7. Set the [Configurations] > [<cluster name>-config] > [HTTP Service] > [Virtual Servers] "server" item shown below.

Item name	Content
allowRemoteAddress (Additional Property)	Specify the session registry client IP address that allows access to the session registry server as a regular expression. For details, refer to " 7.8.3 HTTP Service Definition Items ", "Client address that receives requests" in the "List of Definition Items" chapter.

8. Set the [Clusters] > [<cluster name>] > Instances > [<instance name>] > [Properties] > [Configuration Properties] item shown below.

Item name	Content
HTTP_LISTENER_PORT	As the override value, specify the port number that is used by the session registry server for connection with the target web container. (*1)

*1 To place a firewall between the session registry server and web container, the firewall settings must be configured so that the port number HTTP communication that was set here is allowed.

9. Set the [Configurations] > [<cluster name>-config] > [Process Settings] items shown below. For details, refer to each item in "Process Control Definition Items" in the "List of Definition Items" chapter.

Process setting	Content
Maximum Processing Time	Specify the monitoring time for the maximum processing time of the session registry server. For details, refer to " 4.10.4.1 Settings for each Timeout Value ".

Process setting	Content
Terminate Process for Time out	Specify the action to take if the processing does not end even when the maximum processing time of the session registry server has elapsed. Select "Warning message" or "Perform application forced stop".
Maximum Startup Time	Specify the monitoring time until the session registry server startup is complete. Normally, there is no problem if the default value is set.

Note

Multiple server instances must not be created in the IJServer cluster for the Session Registry Server.

4.10.2.2 Creating the IJServer Cluster for the Session Registry Server (Using the asadmin Command)

This section explains the method using the asadmin command to create the IJServer cluster for the session registry server.

For details on the asadmin command, refer to "asadmin" in the "Java EE Operation Commands" chapter.

1. Create one IJServer cluster and one server instance.

Example

```
asadmin create-cluster --newinstances srs1_instance1 srs1
```

2. Remove the link with the web server connector.

Example

```
asadmin delete-web-server-ref --target srs1 FJapache
```

3. Specify the session registry server heap size in the IJServer cluster JavaVM option. For details on the values that are set, refer to "Chapter 6 Java EE Function Tuning" - "Session Recovery Functionality Tuning". Note that the default setting must be deleted before this value is set.

Example

Windows32/64

```
asadmin delete-jvm-options --target srs1 \-Xmx256m
asadmin create-jvm-options --target srs1 \-Xmx322m
```

Solaris32 Linux32/64

```
asadmin delete-jvm-options --target srs1 \-\-Xmx256m
asadmin create-jvm-options --target srs1 \-\-Xmx322m
```

Solaris64

```
asadmin delete-jvm-options --target srs1 \-\-Xmx512m
asadmin create-jvm-options --target srs1 \-\-Xmx578m
```

4. Specify the module that is required to run the session registry server in the class path.

Example

Windows32/64

```
asadmin set srs1.java-config.classpath-suffix=C:\Interstage\F3FMjssrs\lib\jssrs-isjee.jar
```

Solaris32/64 Linux32/64

```
asadmin set srs1.java-config.classpath-suffix=/opt/FJSVjssrs/lib/jssrs-isjee.jar
```

5. Specify the maximum number of concurrent session registry server processes. For details, refer to "[4.10.4.2 Settings for Session Registry Server Concurrency](#)".

Example

```
asadmin set srs1.http-service.request-processing.thread-count=384
```

6. Specify the HTTP listener definition items of the session registry server.

- Operation mode for access to the session registry server
- Session registry server IP address (*1)
- Timeout (for details, refer to "[4.10.4.1 Settings for each Timeout Value](#)".)

Example

```
asadmin set srs1.http-service.http-listener.default.property.requestCheck=direct
a asadmin set srs1.http-service.http-listener.default.address=192.0.2.1
asadmin set srs1.http-service.http-listener.default.property.connectionUploadTimeout=30000
```

*1 To use all the valid IP addresses in the machine that runs the session registry server, specify '0.0.0.0'.

7. Specify the Session Registry Client IP address that allows access to the Session Registry Server as a regular expression. For details, refer to "HTTP Service Definition Items", "Client address that receives requests" in the "List of Definition Items" chapter.

Example

Windows32/64

```
asadmin set srs1.http-service.virtual-server.server.property.allowRemoteAddress=192\\.0\\.2\\.2
```

Solaris32/64 Linux32/64

```
asadmin set srs1.http-service.virtual-server.server.property.allowRemoteAddress=192\\.\\.0\\.\\.2\\.\\.2
```

8. Specify the port number that is used by the session registry server for connection with the target web container. (*1)

Example

```
asadmin set srs1_instance1.system-property.HTTP_LISTENER_PORT=5678
```

*1 To place a firewall between the session registry server and the web container, the firewall settings must be configured so that the port number HTTP communication that was set here is allowed.

9. Specify the process control definition items of the session registry server. For details, refer to each item in "Process Control Definition Items" in the "List of Definition Items" chapter.

- Maximum application processing time (for details, refer to "[4.10.4.1 Settings for each Timeout Value](#)").
- Behavior when the maximum application processing time is exceeded
- IJServer cluster startup wait time

Example

```
asadmin set srs1.ijserver-control.maximum-processing-time=600
asadmin set srs1.ijserver-control.terminate-process-for-timeout=true
asadmin set srs1.ijserver-control.maximum-startup-time=900
```

4.10.2.3 Deploying Session Registry Server (Using the Interstage Java EE Admin Console)

This section explains how to deploy the session registry server using the Interstage Java EE Admin Console.

Using the Interstage Java EE Admin Console, execute [Clusters] > [cluster name] > [Applications] > [Deploy]

1. Configure the settings shown below. Other settings must not be configured.

Names of items in the Deploy Enterprise Applications/ Modules window	Content
Type	Enterprise Application (.ear)
Location	Specify the following file: <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-bottom: 5px;">Windows32/64</div> C:\Interstage\F3FMjssrs\ear\srsee.ear <div style="border: 1px solid black; padding: 2px; width: fit-content; margin-bottom: 5px;">Solaris32/64 Linux32/64</div> /opt/FJSVjssrs/ear/srsee.ear
Targets	Name of the IJServer cluster for the session registry server

2. Click **OK**.

4.10.2.4 Deploying Session Registry Server (Using the asadmin Command)

This section explains how to deploy the session registry server using the asadmin command.

For details on the asadmin command, refer to "asadmin" in the "Java EE Operation Commands" chapter.

Use the asadmin command to deploy the session registry server.

Example

When the session registry server name (IJServer cluster name) is "srs1"

Windows32/64

```
asadmin deploy --target srs1 C:\Interstage\F3FMjssrs\ear\srsee.ear
```

Solaris32/64 Linux32/64

```
asadmin deploy --target srs1 /opt/FJSVjssrs/ear/srsee.ear
```

4.10.2.5 Session Registry Server Environment Settings

Setting Method

Using the Interstage Java EE Admin Console or the asadmin command, specify the session registry server environment settings in the IJServer cluster JavaVM option (-D).

- Using the Interstage Java EE Admin Console

Execute [Configurations[> [<cluster name>-config] > [JVM Settings] > [JVM Options] > [Add JVM Option], and add the options in the following format:

Example

```
-D[Definition name]=[Defined value]
```

- Using the asadmin command

Example

```
asadmin create-jvm-options --target srs1 -D[Definition name]=[Defined value]
```

Defined Content

This section explains the content of the session registry server environment settings.

Controlling the number of sessions that are retained

Definition name	com.fujitsu.interstage.jservlet.sessionrecovery.clean.interval
Defined value	Integer between 0 and 2147483647 The default value is 0. If 0 was specified, there will be no upper limit.
Description	Specify the upper limit for the number of sessions that are retained in the session registry server.

Monitoring interval (in seconds) for expired sessions

Definition name	com.fujitsu.interstage.jservlet.sessionrecovery.clean.interval
Defined value	Integer between 30 and ~2147483647 The default value is 60.
Description	Specify the interval (in seconds) for monitoring sessions that have timed out.

Sending expired sessions to the IJServer cluster

Definition name	com.fujitsu.interstage.jservlet.sessionrecovery.invalid.session.send
Defined value	- on : Enabled - off: Disabled (default)
Description	Of the sessions that have reached the timeout that exists in the session registry server, set whether to send those sessions that have been destroyed but not notified by the IJServer cluster to the session registry client that is still alive. By enabling this definition, it will be possible to execute the methods, which are called when the session is destroyed, for sessions that exist only on the session registry server.

Wait time (in seconds) until the notification that the session is invalid

Definition name	com.fujitsu.interstage.jservlet.sessionrecovery.invalid.session.waiting.time
Defined value	Integer between 60 and 2147483647 The default value is 2000.
Description	When "com.fujitsu.interstage.jservlet.sessionrecovery.invalid.session.send" is "on", if sessions that have reached the timeout that exists in the session registry server have not been notified by the session registry client as being invalid, even though the wait time (in seconds) specified in this definition was reached, the expired sessions are sent to the session registry client that is still alive.

Session Serialization

Definition name	com.fujitsu.interstage.jservlet.sessionrecovery.session.store
Defined value	- on : Enabled - off: Disabled (default)
Description	Select whether the session registry server will perform session serialization (archiving to a file). Case-sensitivity is not used. To use the cluster service functionality, "on" must always be selected.

Directory for storing the serialized file of the session

Definition name	com.fujitsu.interstage.jservlet.sessionrecovery.serialize.file.path
Defined value	Specify the destination for storing the session information serialized file according to the following range:  1 to 100 characters

	<p>Solaris32/64 Linux32/64</p> <p>1 to 870 characters</p> <p>If the name of the server instance of the session registry server is "srs1_instance1", the default value will be as follows:</p> <p>Windows32/64</p> <p>[Java EE common directory]\nodeagents\ijna\srs1_instance1\dat</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/nodeagents/ijna/srs1_instance1/dat</p>
Description	<p>The subdirectory "sr" is generated and used under the directory that was specified in this definition.</p> <p>Note the following points regarding the value that is specified.</p> <ul style="list-style-type: none"> - The absolute path must always be specified. - If the directory does not exist, an error occurs on startup and the operation cannot be performed. - To use the cluster service functionality, specify a shared disk path that can be used from each node. - Windows32/64 Network drives or UNC paths cannot be specified. - Solaris32/64 Linux32/64 To run the session registry server as a user without root privileges, that user must have full privileges for the directory that was specified. Change the owner or privileges if necessary.

Interval (in seconds) for serialization of the session

Definition name	com.fujitsu.interstage.jservlet.sessionrecovery.serialize.interval
Defined value	Integer between 1 and 2147483647 The default value is 60.
Description	Specify the interval (in seconds) for serialization of the session.

Wait time (in seconds) to obtain the latest session

Definition name	com.fujitsu.interstage.jservlet.sessionrecovery.pop.timeout
Defined value	Integer between 1 and 86400 The default value is 360.
Description	<p>This is the maximum wait time to obtain the latest session from the container which originally retained the session, when session recovery is used.</p> <p>This is the wait time while the session is processing other requests. If the wait time is exceeded while the session is being used, that session will not be recovered.</p> <p>For details on the timeout values, refer to "4.10.4.1 Settings for each Timeout Value".</p>

4.10.3 Session Registry Client Settings

This section explains the session registry client settings.

Configuration

Examples of the session registry server and session registry client configuration are shown below.

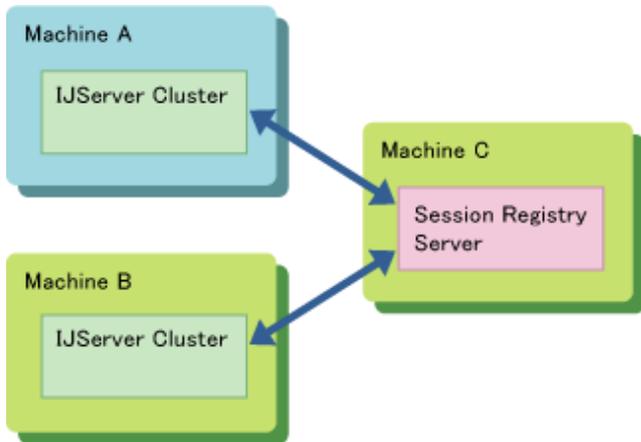
Using one session registry server on multiple machines

In this configuration, the IJServer cluster and the session registry server run on different machines. For this reason, web application operations can continue even if machine A or machine B, both of which the IJServer cluster runs on, crashes. However, session recovery

cannot be used while machine C, which the session registry server runs on, is unusable following the crash. (Session backup/recovery cannot be performed, however normal business can continue.)

For this reason, if operations are performed using this configuration, the following cost disadvantages will occur:

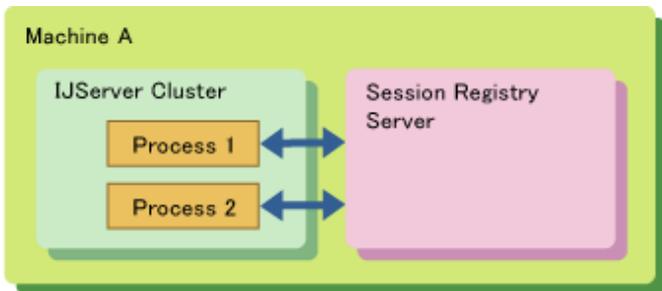
- A separate machine must be prepared for the session registry server
- The machine that is used for the session registry server must be a high reliability machine



Running the IJServer cluster on multiple server instances

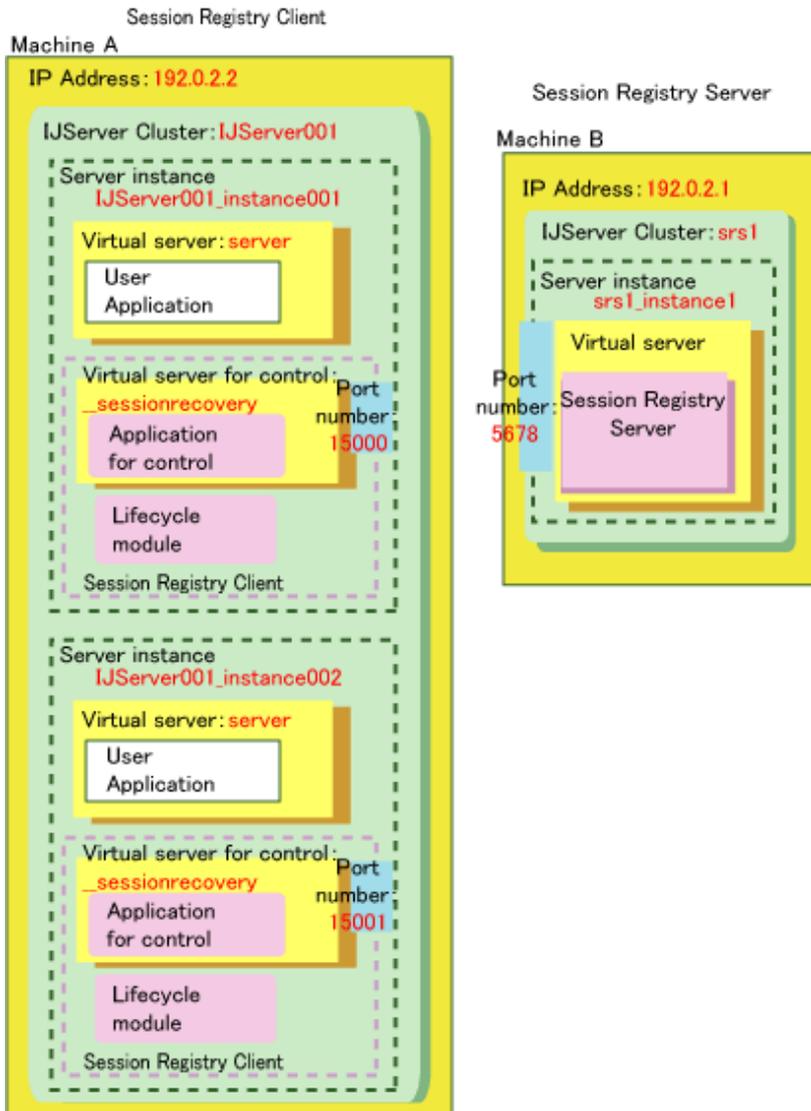
In this configuration, if one of the IJServer cluster server instances crashes and is unusable, the session is recovered to a server instance that has not crashed. For this reason, web application operations can continue even if a server instance has crashed and is unusable.

In this configuration, the IJServer cluster runs on one machine, therefore web application operations cannot continue if the machine crashes.



Setting Method

An example that is used in the explanation for the setting method is as follows:



Machine A example

Item		Value
Machine IP address		192.0.2.2
IJServer cluster name		IJServer001
	Server instance name	IJServer001_instance001
	Port number of the HTTP listener for control	15000
	Server instance name	IJServer001_instance002
	Port number of the HTTP listener for control	15001

For an explanation on Machine B, refer to "4.10.2 Session Registry Server Settings".

To use the IJServer cluster as the session registry client, in addition to the normal IJServer cluster settings it will also be necessary to set the definition items and user application definitions shown below.

Definition items

Item name	Location of settings	Content
Class path	IJServer cluster JavaVM option	[Property name] java-config.classpath-suffix [Value] Specify the following as the class path suffix: Windows32/64 C:\Interstage\F3FMjssrc\lib\jssrc-isjee.jar Solaris32/64 Linux32/64 /opt/FJSVjssrc/lib/jssrc-isjee.jar
Lifecycle module class name	Lifecycle module	[Value] com.fujitsu.interstage.jservlet.sessionrecovery.client.startup.ISJE5Starter (fixed value)
Address of the session backup destination session registry server	Lifecycle module property	[Property name] srsAddress [Value] session registry server IP address
Port of the session backup destination session registry server		[Property name] srsPort [Value] Port that was set for HTTP_LISTENER_PORT of the session registry server
Backup trigger		[Property name] backupMode [Value] interval: Fixed interval request: When the request ends Default value: interval
Backup interval		[Property name] backupInterval [Value] 1-2147483647 (seconds) Default value: 5
Wait time for a response from the session registry server		[Property name] responseWaitTime [Value] 1-86400 (seconds) Default value: 440
End of the URL that does not use the session		[Property name] excludeExt

Item name	Location of settings	Content
		[Value] Extension. Alphanumeric characters and underscores ('_') can be specified. When multiple items are specified, a semi-colon (;) must be used as the separator.
Valve for control	Virtual server property (server)	[Property name] valve_sr [Value] com.fujitsu.interstage.jservlet.sessionrecovery.client.core.isje5.ISJE5SessionRegistryValve (fixed value)
Name of the virtual server for control	Virtual server for control	[Value] __sessionrecovery (fixed value)
Client address for the virtual server for control for receiving requests	Property of the virtual server for control	[Property name] allowRemoteAddress [Value] Specify the IP address as a regular expression For details, refer to " 7.8.3 HTTP Service Definition Items " in the "List of Definition Items" chapter.
Port number of the HTTP listener for control (Default value for the IJServer cluster settings) (*1)	IJServer cluster settings system property	[Property name] SESSIONRECOVERY_PORT [Value] 1-65535
Port number of the HTTP listener for control (Override value for the server instance) (*1)	Server instance system property	However, 1-1023 are well-known ports, therefore they must not be used. Default value: A default value has not been set. For this reason, set the IJServer cluster settings default value and the server instance override value so that they are unique in each server instance.
Name of the HTTP listener for control	HTTP listener for control	[Value] __sr-listener (fixed value)
Operation mode for access to the web container of the HTTP listener for control	HTTP listener for control	[Property name] requestCheck [Value] direct (not using a web server connection) For details, refer to " 7.8.3 HTTP Service Definition Items " in the "List of Definition Items" chapter.
Enabling the Availability Service	IJServer cluster	[Property name] availability-service.availability-enabled [Value] true

Item name	Location of settings	Content
Enabling the Availability for the Web Container	IJServer cluster	[Property name] web-container-availability.availability-enabled [Value] true

*1 To place a firewall between the session registry server and the web container, the firewall settings must be configured so that the port number HTTP communication that was set here is allowed.

deployment descriptor Settings

deployment descriptor that is set	Tag that is set
Web application deployment descriptor (web.xml)	<distributable/> For details, refer to " 3.2.2.2 Web Application Deployment Descriptor (web.xml) ".
Interstage Web application deployment descriptor (sun-web.xml)	<session-config> <session-manager persistence-type="isjee-src"/> </session-config> For details, refer to " 3.2.3.2 Interstage Web Application Deployment Descriptor (sun-web.xml) ".

The settings are configured using the asadmin command. For details on the asadmin command, refer to "[10.1 asadmin](#)".

1. Set the class path.

Add the module that is required to run the session registry client to the class path. If the class path has already been set, this class path should also be specified at the same time.

Example

Windows32/64

```
asadmin set IJServer001.java-config.classpath-suffix=C:\Interstage\F3FMjssrc\lib\jssrc-isjee.jar
```

Solaris32/64 Linux32/64

```
asadmin set IJServer001.java-config.classpath-suffix=/opt/FJSVjssrc/lib/jssrc-isjee.jar
```

2. Create the lifecycle module. Note that any name can be specified as the lifecycle module definition name (in the following example, this is "src_module001").

Example

```
asadmin create-lifecycle-module --target IJServer001 --classname  
com.fujitsu.interstage.jservlet.sessionrecovery.client.startup.ISJE5Starter --property srsAddress=192.0.2.1:srsPort=5678  
src_module001
```

3. Add the Valve for control.

Example

```
asadmin set IJServer001.http-service.virtual-  
server.server.property.valve_sr=com.fujitsu.interstage.jservlet.sessionrecovery.client.core.isje5.ISJE5SessionRegistryValve
```

4. Create the virtual server for control.

Use the asadmin create-virtual-server subcommand. Specify the IP address that allows access to the virtual server that was created as a regular expression. Note that, if the virtual server for control was created incorrectly, create the IJServer cluster again.

Example

Windows32/64

```
asadmin create-virtual-server --target IJServer001 __sessionrecovery
asadmin set IJServer001.http-service.virtual-server.__sessionrecovery.property.allowRemoteAddress=192\.\0\.\2\.\1
```

Solaris32/64 Linux32/64

```
asadmin create-virtual-server --target IJServer001 __sessionrecovery
asadmin set IJServer001.http-service.virtual-server.__sessionrecovery.property.allowRemoteAddress=192\.\0\.\2\.\1
```

5. Set the port number of the HTTP listener for control.

Set an IJServer cluster settings default value and an override value for each server instance. The value that is specified should be different for each server instance.

Example

```
asadmin create-system-properties --target IJServer001-config SESSIONRECOVERY_PORT=15000
asadmin create-system-properties --target IJServer001_instance002 SESSIONRECOVERY_PORT=15001
```



Note

When defining the system property for the IJServer cluster, specify the configuration name (IJServer cluster name-config) as shown on line 1 in the example.

6. Create the HTTP listener for control.

Use the `asadmin create-http-listener` subcommand. The requests that are received by the HTTP listener that was created do not use a web server connection, therefore specify "direct" as the operation mode for access to the web container. Note that, if the HTTP listener for control was created incorrectly, create the IJServer cluster again.

Example

Windows32/64

```
asadmin create-http-listener --listeneraddress 0.0.0.0 --listenerport ${SESSIONRECOVERY_PORT} --defaultvs __sessionrecovery
--target IJServer001 __sr-listener
asadmin set IJServer001.http-service.http-listener.__sr-listener.property.requestCheck=direct
```

Solaris32/64 Linux32/64

```
asadmin create-http-listener --listeneraddress 0.0.0.0 --listenerport \${SESSIONRECOVERY_PORT} --defaultvs
__sessionrecovery --target IJServer001 __sr-listener
asadmin set IJServer001.http-service.http-listener.__sr-listener.property.requestCheck=direct
```

7. Deploy the application for control.

Example

Windows32/64

```
asadmin deploydir --virtualservers __sessionrecovery --target IJServer001 C:\Interstage\F3FMjssrc\webapps\srcapl-isjee
```

Solaris32/64 Linux32/64

```
asadmin deploydir --virtualservers __sessionrecovery --target IJServer001 /opt/FJSVjssrc/webapps/srcapl-isjee
```

8. Enable the Availability Service and the Availability for the Web Container.

Example

```
asadmin set IJServer001.availability-service.availability-enabled=true
asadmin set IJServer001.web-container-availability.availability-enabled=true
```

9. Set the web application deployment descriptor (web.xml) of the user application.

Add the following description to web.xml:

```
<distributable/>
```

10. Set the Interstage web application deployment descriptor (sun-web.xml) of the user application.

Add the following description to sun-web.xml:

```
<session-config>
<session-manager persistence-type="isjee-src"/>
</session-config>
```

11. Deploy the user application.

To use session recovery in the user application, use the deploy subcommand of the asadmin command to deploy the application, and specify the --availabilityenabled and --virtualservers options.

User applications that use session recovery cannot be deployed using the Interstage Java EE Admin Console.

Example

Windows32/64

```
asadmin deploy --availabilityenabled=true --virtualservers=server --target IJServer001 C:/sample.war
```

Solaris32/64 Linux32/64

```
asadmin deploy --availabilityenabled=true --virtualservers=server --target IJServer001 /home/sample.war
```

To perform directory deployment, use the deploydir subcommand of the asadmin command, and specify the --availabilityenabled and --virtualservers options.

Example

Windows32/64

```
asadmin deploydir --availabilityenabled=true --virtualservers=server --target IJServer001 C:/sample
```

Solaris32/64 Linux32/64

```
asadmin deploydir --availabilityenabled=true --virtualservers=server --target IJServer001 /home/sample
```

To extract a user application that has already been deployed to the IJServer cluster that is used as the session registry client, use the create-application-ref subcommand of the asadmin command, and specify the --virtualservers option.

Example

Windows32/64

```
asadmin create-application-ref --virtualservers=server --target IJServer001 sample
```

Solaris32/64 Linux32/64

```
asadmin create-application-ref --virtualservers=server --target IJServer001 sample
```

4.10.4 Session Recovery Tuning

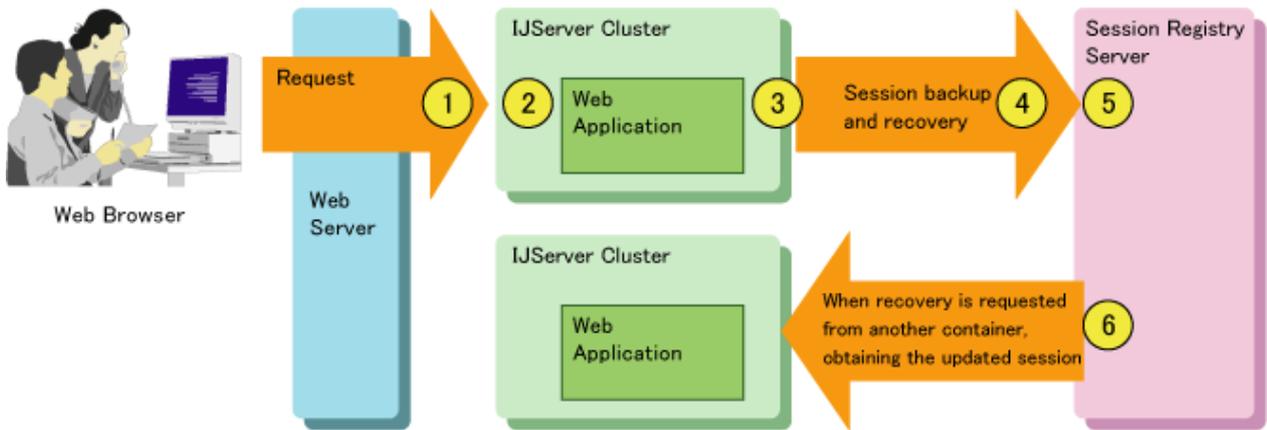
This section explains the tuning of the settings that are related to session recovery.

4.10.4.1 Settings for each Timeout Value

This section explains the communication timeout value settings that are configured in session recovery.

Set the following timeout values, which are related to session recovery,.

Location of settings [Item name]		Value range/default	Content
		Examples in the session registry server	
(1)	IIServer cluster: "HTTP Service Definition Items" HTTP listener additional property - Timeout time (connectionUploadTimeout)	1-2147483647 / 30000 (milliseconds)	Specify the time (in milliseconds) until the communication is broken, when the communication with the client has been lost. The web container uses the value that was specified to perform a timeout check twice, therefore the value that is required must be specified as a value that has been split into two.
		30000 (milliseconds)	
(2)	IIServer cluster: "Process Control Definition Items" Maximum application processing time (maximum-processing-time)	0-86400 / 480 (seconds)	Specify the monitoring time for the maximum processing time of the application.
		480 (seconds)	
(3)	"Session Registry Client Settings" Wait time for a response from the session registry server (responseWaitTime)	1-86400 / 440 (seconds)	Set the wait time for a response from the session registry server.
		440(seconds)	
(4)	Session Registry Server: "HTTP Service Definition Items" HTTP listener additional property - Timeout time (connectionUploadTimeout)	1-2147483647 / 30000 (milliseconds)	Specify the time (in milliseconds) until the communication is broken, when this session registry server has lost the communication from the target web container. The web container uses the value that was specified to perform a timeout check twice, therefore the value that is required must be specified as a value that has been split into two.
		30000 (milliseconds)	
(5)	Session Registry Server: "Process Control Definition Items" Maximum application processing time (maximum-processing-time)	0-86400 / 480 (seconds)	Specify the monitoring time for the maximum processing time of the session registry server.
		400 (seconds)	
(6)	Session Registry Server: "Session Registry Server Environment Settings" Wait time to obtain the latest session(com.fujitsu.interstage.jserv let.sessionrecovery.pop.timeout)	1-86400 / 360 (seconds)	Set the maximum wait time to obtain the latest session from the container which originally retained the session, when session recovery is used. This is the wait time while the session is processing other requests. If this wait time is exceeded while the session is still being used, the session will not be recovered.
		360 (seconds)	



Configure each value so that the following relationship is satisfied:

(2) > (3) > (5) > (6)
 (1) <= (2)
 (4) <= (5)

4.10.4.2 Settings for Session Registry Server Concurrency

For the number of concurrent session registry server processes, set a value that is equal to or less than the IJServer cluster that is used as the destination for the backup of the sessions of that session registry server. Specify an upper limit value of 2048 as the number of concurrent session registry server processes.

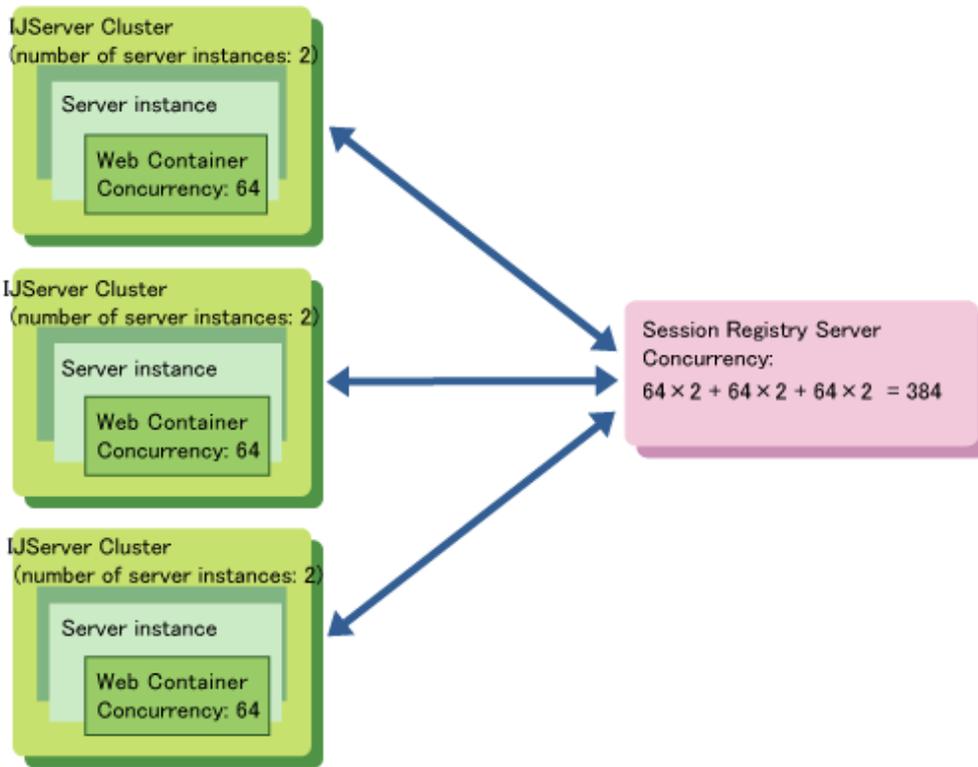
Number of concurrent web container processes x Number of IJServer cluster server instances



Example

In the following example, there are 64 concurrent web container processes and 3 IJServer clusters with 2 server instances which use the session registry server as the backup destination, therefore:

$64 \times 2 + 64 \times 2 + 64 \times 2 = 384$ is set.

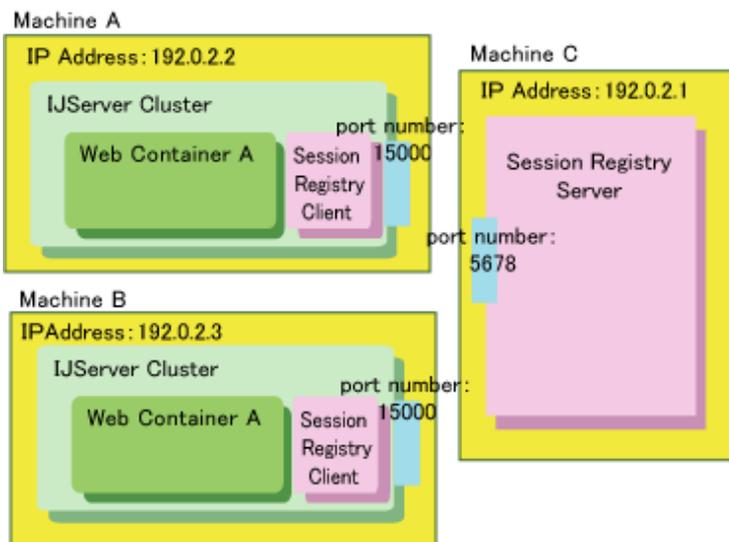


4.10.4.3 Examples of the IP Address and Port Number Settings

The section provides examples of the IP address and port number settings that are required to perform the following operations:

- Running the session registry server and the IJServer cluster that runs the web application on different machines
- Running the session registry server and the IJServer cluster that runs the web application on the same machine

Example 1: Running the session registry server and the IJServer cluster that runs the web application on different machines



Session Registry Server (Machine C: 192.0.2.1) Environment Settings

	Item		Example of the value that is set	Remarks	
(1)	HTTP Service Definition Items	HTTP listener (default)	Network address (*1)	192.0.2.1	Specify the machine IP address or '0.0.0.0'.
(2)			Listener port	5678	
(3)		Virtual server (server)	Client address for receiving requests	192\0\2\2, 192\0\2\3	Specify the IP addresses of machines A and B, which run the IJServer cluster that runs the web application, as a regular expression. If multiple IP addresses have been set, set all these IP addresses.

Session Registry Client IJServer Cluster (Machine A: 192.0.2.2) Environment Settings

	Item		Example of the value that is set	Remarks	
(4)	Life Cycle Module Definition Items	Lifecycle module property	Address of the session backup destination session registry server (srsAddress)	192.0.2.1	Specify the session registry server IP address.
(5)			Port of the session backup destination session registry server (srsPort)	5678	Specify the session registry server port.
(6)	System Property Definition Items	SESSIONRECOVERY_PORT setting	Port number of the HTTP listener for control (Default value for the IJServer cluster settings)	15000	
(7)	HTTP Service Definition Items	HTTP listener for control (__sr-listener)	Network address	192.0.2.2	Specify the machine IP address or '0.0.0.0'.
(8)		Virtual server for control (__sessionrecovery)	Client address for receiving requests	192\0\2\1	Specify the session registry server IP address as a regular expression. If multiple IP addresses have been set on the machine that runs the session registry server, set all these IP addresses.

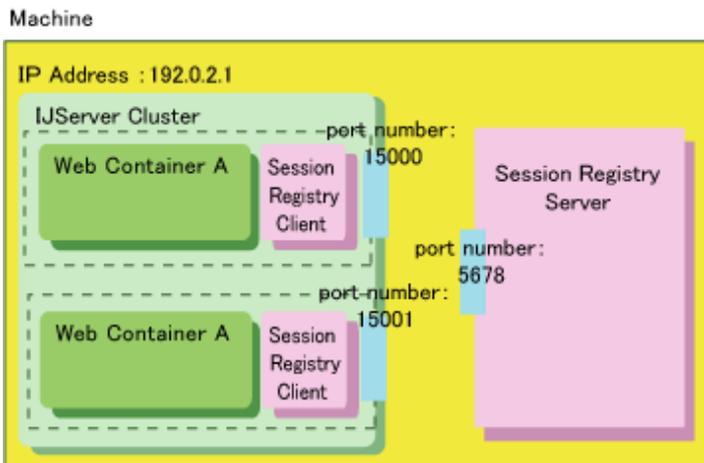
Session Registry Client IJServer Cluster (Machine B: 192.0.2.3) Environment Settings

	Item		Example of the value that is set	Remarks	
(9)	Life Cycle Module Definition Items	Lifecycle module property	Address of the session backup destination session registry server (srsAddress)	192.0.2.1	Specify the session registry server IP address.

	Item			Example of the value that is set	Remarks
(10)			Port of the session backup destination session registry server (srsPort)	5678	Specify the session registry server port.
(11)	System Property Definition Items	SESSIONRECOVERY_PORT setting	Port number of the HTTP listener for control (Default value for the IJServer cluster settings)	15000	
(12)	HTTP Service Definition Items	HTTP listener for control (__sr-listener)	Network address	192.0.2.2	Specify the machine IP address or '0.0.0.0'.
(13)		Virtual server for control (__sessionrecovery)	Client address for receiving requests	192\,0\,2\,1	Specify the session registry server IP address as a regular expression. If multiple IP addresses have been set on the machine that runs the session registry server, set all these IP addresses.

*1 To use all valid server IP addresses, specify '0.0.0.0'. To restrict the IP addresses which are used when multiple IP addresses have been set on the machine that runs the session registry server, set the IP addresses which are allowed, and set the session registry server IP addresses for the other definition items (4), (8), (9), (13) so that they are also unified with these settings. Note that, if the network address has been set as '0.0.0.0', the IP addresses of the other definition items must also be unified with the IP addresses of the actual machine.

Example 2: Running the session registry server and the IJServer cluster that runs the web application on the same machine



Session Registry Server Environment Settings

	Item			Example of the value that is set	Remarks
(1)	HTTP Service Definition Items	HTTP listener (default)	Network address (*1)	127.0.0.1	Specify 127.0.0.1 (*2) or '0.0.0.0' as the IP address.
(2)			Listener port	5678	
(3)		Virtual server (server)	Client address for receiving requests	127\.\0\.\0\.\1	Specify 127.0.0.1 (*2).

Session Registry Client IJServer Cluster Environment Settings

	Item			Example of the value that is set	Remarks
(4)	Life Cycle Module Definition Items	Lifecycle module property	Address of the session backup destination session registry server (srsAddress)	127.0.0.1	Specify 127.0.0.1 (*2) as the IP address.
(5)			Port of the session backup destination session registry server (srsPort)	5678	
(6)	System Property Definition Items	SESSIONRECOVERY_PORT setting	Port number of the HTTP listener for control (Default value for the IJServer cluster settings)	15000	When there are two server instances of the IJServer cluster that runs the web application
(7)		SESSIONRECOVERY_PORT setting	Port number of the HTTP listener for control (Override value for the server instance)	15001	
(8)	HTTP Service Definition Items	HTTP listener for control (__sr-listener)	Network address	127.0.0.1	Specify 127.0.0.1 (*2) or '0.0.0.0' as the IP address..
(9)		Virtual server for control (__sessionrecovery)	Client address for receiving requests	127\.\0\.\0\.\1	To perform access control, specify 127.0.0.1 (*2) as a regular expression.

*1 To use all valid server IP addresses, specify '0.0.0.0'. To restrict the IP addresses which are used when multiple IP addresses have been set on the machine that runs the session registry server, set the IP addresses which are allowed, and set the IP addresses for the other definition items (3), (4), (8) so that they are also unified with these settings. Note that, if the network address has been set as '0.0.0.0', the IP addresses of the other definition items must also be unified with 127.0.0.1 or the IP addresses of the actual machine.

*2 Each IP address can also be specified as the IP address of the actual machine (for example, 192.0.2.1) instead of 127.0.0.1. However, there cannot be mixed machine IP addresses and 127.0.0.1 IP addresses. Unify the IP addresses so that one standard or the other is used.

4.10.5 Operations

4.10.5.1 Session Registry Server Operations and References

Session registry server operations and references to various information is performed as an IJServer cluster operation or reference using the Interstage Java EE Admin Console.

Displaying the Session Registry Server status, and operations

[Clusters]

[Clusters] > [Cluster name]

Session Registry Server Environment Settings

[Configurations] > [<cluster name>-config]

[Configurations] > [[<cluster name>-config] > [Logger Settings]

The environment settings can also be configured using the `asadmin` command.

For details on the `asadmin` command, refer to "asadmin" in the "Java EE Operation Commands" chapter.

Displaying the list of session registry servers

[Clusters]

Displaying the session registry server monitor

[Clusters] > [<cluster name>] > [Instances] > [<instance name>] > [Monitor]

Log reference

[Clusters] > [<cluster name>] > [Log download]

The log is output to the same file as the IJServer cluster log, therefore refer to the server log/Java VM log.

4.10.5.2 Changing the Session Registry Server Start User Solaris32/64 Linux32/64

The IJServer cluster that runs the session registry server can be started by the service operator user. However, if the start user was changed on or after the initial startup when session serialization was used, the inheritance of the serialized session will not be guaranteed.

When using serialization functionality, to perform operations as a user other than the user that started the session registry server previously, perform one of the steps shown below before changing the user. Note that, to perform these actions, the directory that was specified in "com.fujitsu.interstage.jservlet.sessionrecovery.serialize.file.path" must exist, and the user after the change must have full privileges.

- Clear the serialized file.
- Change the directory specified in "com.fujitsu.interstage.jservlet.sessionrecovery.serialize.file.path", which is specified in the session registry server Java VM option, to another directory.

If the session registry server was started by a different user without performing one of the above steps first, the serialization may fail. In this case, take one of the following actions:

- Start the session registry server as the original user.



.....
If the session registry server has been started even once with root privileges, this action cannot be performed. Take one of the following actions:
.....

- Clear the serialized file.
- Change "com.fujitsu.interstage.jservlet.sessionrecovery.serialize.file.path" to a directory for which the user after the change has full privileges.

4.10.5.3 Isolating a Machine

To isolate the machine that runs the session registry server for maintenance, for example, the following procedure must be performed:

1. Stop the session registry server.
2. On the session registry server that was stopped, refer to the server log and system log of the IJServer cluster that is being backed up to check the following:
 - Check that the session registry server was marked as being unusable (message JSSR32001 was output), as in "[2.6.1.4 Session Recovery Monitoring](#)".

3. Stop the machine.

If the machine was stopped without performing the above steps first, the responses of web applications that are running may temporarily deteriorate, and the requests from the client may time out.

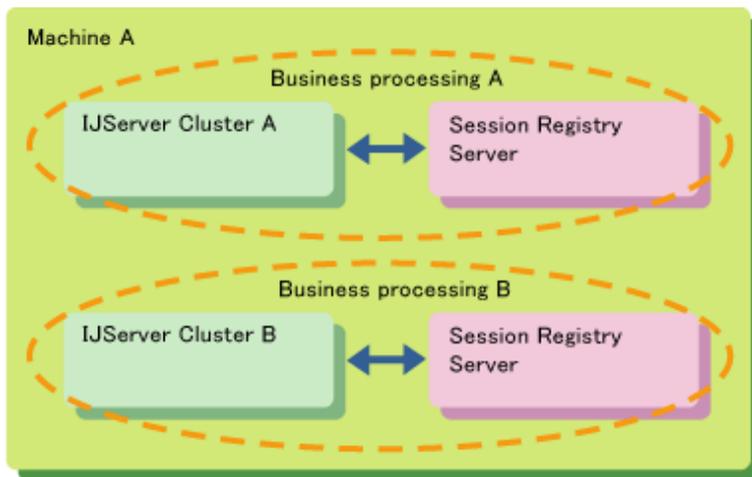
Note that, if the machine was isolated, it will not be possible to backup/recover sessions, however normal business can continue.

4.10.5.4 Multiple Session Registry Server Operations

Multiple session registry server operations can be performed in the same machine.

By separating the session registry server that is used for each business, operations can be performed without being affected by other businesses (for example, with regards to performance and fault occurrences).

Example of separating the session registry server for each business



4.10.5.5 Restarting the Session Registry Server

When the session registry server ends abnormally, even if it is then restarted it may end abnormally again if the cause of the abnormal end was not removed.

For example, if the session registry server has ended abnormally because there were insufficient resources as a result of the estimate for the volume of required resources being insufficient, even if the session registry server was restarted it may continuously end abnormally (sessions that exceed the estimate for the volume of required resources may be backed up again).

If the session registry server was restarted after it ended abnormally and the communication between the session registry server and the web container was recovered, in order to gain consistency in the session information that is retained by both, requests from the web browser will temporarily be unable to be processed during this period. If the session registry server was restarted repeatedly without removing the cause of the abnormal end, the repetition of this processing to gain consistency may affect the response.

For this reason, if the session registry server has been restarted repeatedly, resolve the cause of the error before restarting the session registry server again. If the session registry server has not started, the web container cannot backup or recover sessions, however normal business processing is possible during that time.

Note that the time it takes the processing to gain consistency will depend on the network/machine performance, the number of valid sessions, and size.

4.10.5.6 Backing up and Restoring the Session Registry Server Resources

The session registry server is created and operated as the IJSERVER cluster.

Accordingly, backup/restore the session registry server resources using the same procedure as for backing up/restoring the IJSERVER cluster.

For details on backing up and restoring the IJSERVER cluster, refer to "Chapter 9 Maintenance (Resource Backup/migration of Resources to Another Server)".



Note

If session serialization has been enabled, the serialized file that is output is a temporary resource that does not need to be backed up or restored. However, depending on the directory used to store the serialized file of the session (*1), the serialized file may sometimes be restored together with other resources.

For this reason, after the resources are restored, clear the serialized session information before starting the session registry server.

*1 For the initial value

4.11 Java EE Application Client Operations

This section explains the Java EE application client operations.

4.11.1 Setting the Java EE Application Client Environment

Setting a Class Path

If it is necessary to add a class path for the running of the Java EE application client, specify the class path that is added to the APPCPATH environment variable. If more than one class path is set, use a semi-colon (";") in Windows, or a colon (":") in Solaris/Linux in the same way as for the CLASSPATH environment variable.



Example

```
APPCPATH=C:\util\MyUtil.jar;C:\test\TestTool.jar
```

Java Application start Command Option Settings

To start the application client container, the Java application start command (the java command) is used internally in the same way as for normal Java applications.

To specify an option (such as the -Xmx option) that can be specified in this Java application start command, specify the VMARGS environment variable.



Example

```
VMARGS= -Xmx512m
```

When multiple options are set, specify them as shown below.



Example

Windows32/64

```
VMARGS=-Xmx512m -Xms128m
```

Solaris32/64

Linux32/64

```
VMARGS=" -Xmx512m -Xms128m"
```



Note

- Do not specify the -classpath option. To set the class path, specify this in the APPCPATH environment variable.
- System properties that contain spaces cannot be set.

- If an illegal value is specified, as shown below, a java command error occurs. For details on the method to specify the option, refer to the java command explanation.

When an invalid option was specified

```
>set VMARGS=-option
>appclient -client TestApplicationClient.jar -xml sun-acc.xml
Unrecognized option: -option
Could not create the Java virtual machine.
```

Definition Settings

When configuring the application client container environment settings, configure the required settings in the Interstage ACC deployment descriptor (sun-acc.xml) file. In the following example, information about the server to be connected to has been defined in the Interstage ACC deployment descriptor (sun-acc.xml) file. For details, refer to "[3.2.3 Interstage Deployment Descriptor](#)".

```
<?xml version="1.0" encoding="UTF-8"?>
<client-container>
  <target-server name="server1" address="myhost" port="33700"/>
</client-container>
```

Specify the Interstage ACC deployment descriptor file that was created in the -xml option when the appclient command is executed. If the -xml option was not specified, the following files are referenced:

Windows32/64

```
[Java EE common directory]\domains\interstage\config\sun-acc.xml
```

Solaris32/64 Linux32/64

```
[Java EE common directory]/domains/interstage/config/sun-acc.xml
```

The load balancing function can be used in naming service connections from the application client container. For details on the load balancing function, refer to "[4.23 Control for Dispatching Requests via IIOP Communications](#)".

Checking the Java Version

To check the Java version used by the application client, set "-version" for the VMARGS environment variable, then execute the appclient command (for details, refer to "appclient"). The Java version is displayed in the Console.



Example

```
> set VMARGS=-version
> appclient
```

4.11.2 Java EE Application Client Operation

To run the Java EE application client, perform the following operations:

1. [Generate the Client JAR File](#)
2. [Generate the EAR File](#)
3. [Deploy](#)
4. [Download the Client Stub JAR File](#)
5. [Execute the Java EE Application Client](#)

Each operation is explained below.

1. Generate the Client JAR File

Generate the client JAR file using the following file configurations.

File configuration		Explanation
Class file		Java EE application client class file
META-INF	MANIFEST.MF	manifest file
	application-client.xml	deployment descriptor file
	sun-application-client.xml	Interstage deployment descriptor file

Java EE application client class file

The main class is required for the Java EE application client. Include the classes that are used from the main class in the client JAR file.

For details on the method that is used to create the main class, refer to "[3.1.6 Creating the Client Application](#)".

manifest file

Define the Java EE application client main class in the manifest file. If the main class was not defined, it must be specified in the `applclnt` command option when the client container starts up.

For details on the method to define the manifest file, refer to "[3.1.6 Creating the Client Application](#)".

deployment descriptor file

Define the Java EE application client deployment descriptor file (`application-client.xml`). This file is not mandatory, therefore it should only be created when required. For details, refer to the Java EE rules.

Interstage deployment descriptor file

In IJServer cluster, the Java EE application client behavior can be extended by defining the Interstage deployment descriptor (`sun-application-client.xml`). This file is not mandatory, therefore it should only be created when required. For details, refer to "[3.2.3 Interstage Deployment Descriptor](#)".

2. Generate the EAR File

If there are applications that need to be referenced from the Java EE application client, then package them in the EAR file, with the reference module if necessary.

3. Deploy

Deploy the file to the IJServer cluster.

4. Download the Client Stub JAR File

Download the client stub JAR file that was generated at the time of deployment.

The JAR file download methods are as follows:

- Specify the `--retrieve` option and download when the EAR file is deployed using the `deploy` subcommand of the `asadmin` command
- Download using the `get-client-stubs` subcommand of the `asadmin` command
- Download from the Interstage Java EE Admin Console

Deployment-responsible privileges are required to download the client stub JAR file. After downloading it, they will distribute it to the users.

The client stub JAR file configurations, which depend on the deployed module, are displayed below.

- For EAR files, the following are included in the client stub JAR file:
 - Submodules (`ejb-jar` files and `App Client` files)
 - Libraries defined in the classpath of the manifest file in the submodule
 - Libraries stored in the directory specified in the `application.xml` `'library-directory'` tag.

- If 'library-directory' tag is omitted, libraries stored in the EAR file lib directory.
 - ear files and submodule deployment descriptors that were updated at the time of the deployment
 - For ejb-jar files and App Client files, the following are included:
 - Resources in the deployment module and deployment descriptors that were updated at the time of the deployment (*1)
- *1 As a result of this inclusion, the file size might increase after application deployment.

For details on the asadmin command, refer to "10.1 asadmin".

5. Execute the Java EE Application Client

The appclient command is used for the execution of the Java EE application client after the application client container is started. Specify the downloaded client stub JAR file then execute the appclient command, as shown below. In the following case, the client stub JAR file is the MyApplicationClient.jar file. For details on the appclient command, refer to the "10.2 appclient" .

```
appclient -client MyApplicationClient.jar -xml sun-acc.xml
```

If the Java EE application client processing is aborted because of InjectionException, then Dependency Injection will fail. Refer to "Dependency Injection Failure Errors", identify the cause of the error and then take action.

When the Java EE application client that accesses the various resources stops, there is no processing to unbind connections pooled in each resource connection pool.

For details on the impact when processing to unbind JDBC resource connections is not performed, refer to the database or JDBC driver manual. If Java DB is used, there is no problem because the system resources will be recovered when the Java EE application client stops.

4.12 Procedure when the Web service is Used

In Interstage Java EE, Web service applications that were created in accordance with Web Services for Java EE 1.2 can be deployed to IJServer cluster and then run using JAX-WS for the API.



Note

Web service applications that use the JAX-WS javax.xml.ws.WebServiceProvider annotation may not be able to use these operation functions.

Web Service Operating Environment

Web service applications that were created using JAX-WS run on IJServer cluster.

Create IJServer cluster and then deploy the Web service application.

For details on the development of Web service applications, refer to "3.1.2 Developing Web Service Applications", "3.1.3 Developing Web Service Client Applications" and "3.1.4 Data Types that can be Used in Web Service Communication".

For details on deployment, refer to "4.12.1 Deploying Web Service Applications".

Additionally, for details on customizing the operating environment, refer to "4.12.2 Customizing the Web Service Operating Environment".



Note

JDK is required to use the Web service function. Operations using JRE are not supported.

4.12.1 Deploying Web Service Applications

Web service applications that were created using JAX-WS are deployed to IJServer cluster in the same ways as the normal WAR, ejb-jar, and EAR modules. For details on the deployment method, refer to "4.6 Deploying Applications".

Additionally, to obtain resources that are referenced from the WSDL file via a proxy, the system properties of the java process that is used by the Interstage Java EE DAS service must be set.

Referencing the List of Web Services that were Deployed

The list of applications can be referenced using the list-components subcommand of the asadmin command. Applications that were deployed as Web services are also displayed as Web services, beside the modules that were deployed.

Referencing/obtaining the Web service WSDL

If a Web service application has been deployed and is enabled, WSDL can be obtained using the ijwsimport command. For details, refer to "3.1.2 Developing Web Service Applications".

Obtaining General Information and Performing Operations as Normal WAR, ejb-jar, and EAR Modules

Besides the obtaining of Web service-specific information for and operation of Web service applications that were deployed, it is also possible to obtain general information and perform operations as normal WAR, ejb-jar, and EAR modules.

4.12.2 Customizing the Web Service Operating Environment

Specifying the Upper Limit for the Received Request Message Size (Including Attachments and SOAP Messages)

The size of request messages (the attachment and SOAP message total) that are received in the Web service can be limited according to the following method.

Specify the following system property in the JavaVM options of the IJServer cluster that operates the Web service.

Property name	Value that is specified
com.sun.xml.ws.transport.http.servlet.ServletConnectionImpl.maxRequestLength	Specify the maximum request size to receive processing in bytes. If a negative value, illegal value, or value that exceeds the int type range is specified, this limit is invalid (the value is unlimited).

Example

Example of the settings where the request upper limit size that is processed in the Web service that is operated using the "MyIJServer" IJServer cluster is limited to 1Mbyte(1048576byte)

```
> asadmin create-jvm-options --target MyIJServer -
Dcom.sun.xml.ws.transport.http.servlet.ServletConnectionImpl.maxRequestLength=1048576
Command create-jvm-options executed successfully.
```

Note

The request size that is processed may be limited by the web server. The limit that was specified above is valid even if the web server limit is invalid.

Return of Exception Stack Traces that have Occurred in the Web Service to the Client

So that cause investigation can be performed rapidly, exception stack traces that have occurred in the Web service or its operating environment can be returned to the Web service client of the caller. For the JavaVM options of the IJServer cluster that operates the Web service, specify the following system property:

Property name	Value that is specified
com.sun.xml.ws.fault.SOAPFaultBuilder.enableCaptureStackTrace	Any

Example

The following is an example of the settings that return of the exception stack trace to the requester to the Web service that is operated using the "MyIIServer" IIServer cluster:

```
> asadmin create-jvm-options --target MyIIServer -Dcom.sun.xml.ws.fault.SOAPFaultBuilder.enableCaptureStackTrace=true
Command create-jvm-options executed successfully.
```

Monitoring the Web Service

The Web service processing statistics can be tracked. Use the Management Console or the `asadmin` command `configure-webservice-management` subcommand to configure the monitor settings.

Three Web service monitor levels are supported: "LOW", "HIGH", and "OFF". For details, refer to "configure-webservice-management subcommand".

Note

"HIGH" is used for the investigation of problems during development and in systems in which traffic is extremely low. Do not specify this setting in Web services in which traffic density is high, because it might cause performance deterioration.

If "HIGH" is set, the SOAP communication messages will be saved in memory, therefore you will require enough memory to retain them. Limit the size of requests accepted in the Web service, so that there is enough memory when large requests are received. For details, refer to "[Specifying the Upper Limit for the Received Request Message Size \(Including Attachments and SOAP Messages\)](#)".

4.13 Procedure when the Web Service Client is Used

This section explains how to use the Web service client.

4.13.1 Web Service Client Operating Environment

Web service client applications that were created using JAX-WS can be operated in the following environments:

IIServer cluster

Web service client applications that were created as Java EE applications such as web applications and EJB applications can be operated.

Application client container

Web service client applications that were created as Java EE application clients can be operated.

Note

The JNDI connection is required across the board to run the application client container, regardless of the application client processing. For this reason, to run the Web service application on the application client container, regardless of the Web service access destination URL, specify the IIOP listener that can be connected by the application client container in the Interstage ACC deployment descriptor `target-server` tag.

For details on the application client container environment settings, refer to "[4.11.1 Setting the Java EE Application Client Environment](#)".

4.13.2 Executing the Web Service Client

Customization of the WSDL URL

When the Web service client is executed, it accesses the WSDL URL that was specified using the `ijwsimport` command.

If these 2 URLs differ, then follow the procedure below:

- Define the URL in the `service-ref/wsdli-file` tags of the deployment descriptor (`web.xml`, `ejb-jar.xml`, `application-client.xml`).
- In Web service client applications, define the URL in the `wsdlLocation` attribute of the `@javax.xml.ws.WebServiceRef` annotation

When both are defined, the deployment descriptor definition will have the higher priority.

Customization of the Web Service URL

The Web service URL can be customized using the `javax.xml.ws.service.endpoint.address` property.

4.14 Setting the JNDI Environment

This section explains the JNDI environment settings.

4.14.1 Setting Environment Variables

The environment variables that are required to use the JNDI service provider are explained below. For details on accessing the database, refer also to "[4.16 Setting the Database Environment](#)".

Using IJServer Cluster and the Application Client Container

There is no need to set environment variables. The environment settings that are required for the operation are set automatically when the container starts up.

Stand-alone Clients

To execute Java SE stand-alone applications using the `java` command, set the following JAR files in the class path.

Windows32/64

```
C:\Interstage\F3FMisjee\lib\appserv-rt.jar
C:\Interstage\F3FMisjee\lib\javaee.jar
```

Solaris32/64 Linux32/64

```
/opt/FJSVisjee/lib/appserv-rt.jar
/opt/FJSVisjee/lib/javaee.jar
```

To reference various resource objects in Java SE stand-alone applications, in addition to the above class path settings, the class path must also be set for the following JAR files.

Windows32/64

```
C:\Interstage\F3FMisjee\lib\appserv-admin.jar
C:\Interstage\F3FMisjee\lib\appserv-ws.jar
C:\Interstage\F3FMisjee\lib\install\applications\jmsra\imqjmsra.jar
```

Solaris32/64 Linux32/64

```
/opt/FJSVisjee/lib/appserv-admin.jar
/opt/FJSVisjee/lib/appserv-ws.jar
/opt/FJSVisjee/lib/install/applications/jmsra/imqjmsra.jar
```

4.14.2 Settings When the Initial Context is Generated

When JNDI API is used in the application, the `javax.naming.InitialContext` class is used as the starting context for performing naming operations and the initial context is generated. The `Context` interface is implemented in the initial context and the starting point for the name resolution provided.

When the initial context is generated, the environment is initialized by the environment parameter that is passed to the constructor, however the value that is specified for this environment parameter depends on the JNDI service provider that is used. For this reason, application portability is lost when the property is specified in the application.

To resolve this problem in Java EE, the application portability is improved by automatically configuring the environment when the container starts up.

For IJServer Clusters and Application Client Containers

The container automatically configures the environment, therefore there is no need to specify the JNDI environment properties. A `jndi.properties` file edited for use in the JNDI service provider provided by the Interstage Java EE service is included in the `appserv-rt.jar` file that is set in the class path automatically when the IJServer cluster or application client container is started. Accordingly, the naming service in the IJServer cluster can be accessed without specifying the context factory in the Java EE component.

For stand-alone Clients

To make this run on a Java SE stand-alone client, the properties are set automatically by setting the `appserv-rt.jar` file in the environment variable class path by priority. Additionally, specify the following to specify the JNDI environment property explicitly.

Property name	Value	Explanation
<code>java.naming.factory.initial</code> (*1)	<code>com.sun.enterprise.naming.SerialInitContextFactory</code>	This is the standard initial context factory for accessing the IJServer cluster naming service.
<code>java.naming.factory.url.pkgs</code>	<code>com.sun.enterprise.naming</code>	This is the property for specifying the package prefix list that is used for loading the URL context factory.

***1** If the following factories are specified in `java.naming.factory.initial`, it will operate, however the behavior cannot be guaranteed. Use the above property instead.

Value	Explanation
<code>Com.sun.jndi.cosnaming.CNContextFactory</code>	This is the initial context factory for CosNaming.
<code>Com.sun.appserv.naming.S1ASContextFactory</code>	This is the initial context factory for load balancing.

4.14.3 Settings for Connections from the Client to the Server

For remote connections from the client to the server naming service, connection destination must be specified in the JNDI environment property. For IIOP communication, the connection destination host name and IIOP listener port number must be set in the remote server.

The port number can be checked from the definition item shown below. It can also be checked using the Interstage Java EE Admin Console.

- `${clusterName_instanceName_configName}.iiop-service.iiop-listener.${iiop-listener-id}.port`

In the initial setting, this setting references the `IIOP_LISTENER_PORT` system property, therefore the port number is set in the following:

- `${instanceName}.system-property.IIOP_LISTENER_PORT`

For IJServer Clusters

The following two methods can be used to access an Enterprise JavaBean that has been registered in the naming service of another process or remote server from the IJServer cluster.

1. Using the function for linking to another naming service (recommended)

The function for linking to another naming service must be used to specify the host name and IIOP listener port number of another process or remote server for the external naming service URL in the JNDI service settings for the cluster. For details on how to define these items, refer to "[7.4.2 JNDI Service Definition Items](#)".

2. Using the INS rules in the Interstage deployment descriptor file to specify the connection destination

The INS rules must be used to specify the host name, IIOP listener port number and JNDI name for another process or remote server in the Interstage deployment descriptor file. For details on how to define these items, refer to "[2.14.2 Environment Naming Context](#)".

When an Application Client Container is Used

When an application client container is used, specify the connection destination server in the Interstage deployment descriptor (sun-acc.xml) file <target-server> tag. Specify a name that is unique for the name attribute, the connection destination host name or IPv4 IP address for the address attribute, and the port number of the IIOP listener to be connected to for the port attribute.

Example

```
<client-container>
  <target-server name="server1" address="host1" port="23700"/>
</client-container>
```

For details on the Interstage deployment descriptor (sun-acc.xml) file, refer to "[3.2.3 Interstage Deployment Descriptor](#)".

When a Stand-alone Client is Used

When a stand-alone client is used, use the load balance function. For details, refer to "[4.23 Control for Dispatching Requests via IIOP Communications](#)".

4.14.4 Cache Settings for Object References

To use the cache function for object references in a server environment, enable the "Object reference cache" item in the naming service linkage settings for the JNDI service.

To use the cache function for object references in a client environment, specify the com.fujitsu.appserv.jndi.remote.object.cache property below.

Property name	Value	Explanation
com.fujitsu.appserv.jndi.remote.object.cache	<ul style="list-style-type: none">- true- false (default value) <p>The value is not case-sensitive. If a string other than "true" or "false" is specified, it will be assumed that "false" has been specified.</p>	<p>This property specifies whether to cache objects that have been looked up from the connection destination with the client process. If "true" is specified, objects will be cached and reused. If "false" is specified, objects will be looked up from the remote server every time, without being cached.</p>

Setting up the Application Client Container

Specify this property by defining a <property> element in the Interstage ACC deployment descriptor file (sun-acc.xml).

Example

```
<client-container>
  <target-server name="server1" address="host1" port="23700"/>
  <property name="com.fujitsu.appserv.jndi.remote.object.cache" value="true"/>
</client-container>
```

Settings for Stand-alone Clients

Specify "com.fujitsu.appserv.jndi.remote.object.cache" for the system property.

Example

```
-Dcom.fujitsu.appserv.jndi.remote.object.cache=true
```

4.15 Preparatory Tasks for Resource Definitions

This section explains the preparatory tasks for resource definitions.

4.15.1 Procedure when JMS is Used

To use JMS, in addition to the creation of the various JMS resources the message broker must also be running. For details, refer to "[4.17 JMS Operation Methods](#)".

4.15.2 Procedure when JavaMail is Used

The operations that are required when JavaMail is used are explained in this section.

Application Create

The application that sends/receives mail is created. For details, refer to the JavaMail 1.4 specs.

Mail Server Settings

To send/receive mail using a JavaMail application, an SMTP server for sending mail, and a POP3server or IMAPserver that are used for receiving mail are required.

Configure the environment settings for the servers that are used for sending/receiving mail. For details, refer to the mail server manual.

JavaMail session Create, Reference, Update, and Delete

JavaMail session create, reference, update, and delete are performed using the Interstage Java EE Admin Console or asadmin command.

When the asadmin command is used, the following subcommands are used, depending on the operation.

Operation contents	Subcommand name
JavaMail session create	create-javamail-resource subcommand
JavaMail session reference	list-javamail-resources subcommand get subcommand
JavaMail session update	set subcommand
JavaMail session delete	delete-javamail-resource subcommand

For details on the operation method, refer to the Interstage Java EE Admin Console Help, or the "[10.1 asadmin](#)" command.

4.15.3 Procedure when JDBC is Used

When JDBC is used, the environment settings must be configured according to the database that is used. For details, refer to "[4.16 Setting the Database Environment](#)".

4.15.4 Procedure when the Connector is Used

When the connector is used, the connector module must be deployed to the IJServer cluster and various resources defined according to the resource adapter type. For details, refer to "[4.18 Connector Operation Method](#)".

4.15.5 Procedure when other Resources are Used

In addition to the resources that are defined in the IJServer cluster or the Enterprise JavaBean that was deployed, resources managed in the naming service can also be defined in their own right.

A resource that can be managed in the IJServer cluster locally is called a "custom resource". A resource that is managed outside the IJServer cluster process when JNDI search is specified is called an "external resource". These resources can be defined using the Interstage Management Console or asadmin command. The method that is used to define each resource is explained below.

4.15.5.1 The Method that is Used to Define Custom Resources

In addition to the resources that are defined in the JServer cluster or the Enterprise JavaBean that was deployed, resources managed in the naming service can also be defined in their own right. This resource type is called a "custom resource".

The following properties must be specified in order to define custom resources.

- JNDI name
- Resource type
- Factory class
- Explanation
- Status

Specific properties that are available for the specified factory class can also be defined as the following properties.

- Additional properties

Server instances are generated by executing the getObjectInstance method on the specified factory class. An object of the javax.naming.Reference class is passed to the first argument of the getObjectInstance method, and the fields of this object are set to the following property values. The getObjectInstance method uses "get" methods to get the field values from the object of the javax.naming.Reference class, and then generates and returns the corresponding object.

Fields of the object of the javax.naming.Reference class	Properties
classFactory	Factory class
className	Resource type
addr	Additional properties The address type (addrType) is set to the property name, while the content of the address is set to the property value.



Example

Examples for the custom resource class and the Factory class are shown below.

The following example is for the custom resource class.

```
package com.mycompany;

public class Widget implements java.io.Serializable {
    private String name;

    public Widget() {
    }

    public Widget(String name) {
        this.name = name;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }
}
```

The following example is for the Factory class.

```

package com.mycompany;

import java.util.Hashtable;
import javax.naming.Name;
import javax.naming.Context;
import javax.naming.Reference;
import javax.naming.StringRefAddr;

public class WidgetFactory implements javax.naming.spi.ObjectFactory {

    public WidgetFactory() {
    }

    public Object getObjectInstance(Object obj,
        Name name,
        Context nameCtx,
        Hashtable<?, ?> environment)
        throws Exception {

        Reference reference = (Reference)obj;
        String className = reference.getClassName();
        Widget widget = null ;
        if( className.equals("com.mycompany.Widget") ) {
            widget = new Widget() ;
        }

        StringRefAddr addrs = null;
        if( widget != null ) {
            if((addrs = (StringRefAddr)reference.get("name")) != null) {
                String content = (String)addrs.getContent();
                widget.setName(content) ;
            }
        }
        return widget;
    }
}

```

In the above example, the following are specified for each custom resource property.

Property	Value
JNDI name	Any name
Resource type	Com.mycompany.Widget
Factory class	Com.mycompany.WidgetFactory

4.15.5.2 The Method that is Used to Define External Resources

In the same way as for custom resources, in addition to the resources that are defined in the IJServer cluster or the Enterprise JavaBean that was deployed, resources that define objects managed in the naming service in their own right also include external resources.

The following must be specified in order to define external resources. A difference with custom resources is that the interface and JNDI search that are implemented by the Factory class can be specified.

- JNDI name
- Resource type
- Factory class
- JNDI search
- Explanation

- Status
- Additional properties

Unlike custom resources, external resources can register objects managed in external repositories in the naming service and manage them there. For example, when an LDAP URL such as "ldap://ldap.umich.edu/o=umich,c=us" that is used for external repository search in the JNDI search is specified, the object that corresponds to the specified search condition can be managed in the naming service.

4.15.6 Procedure for Changing the Resource Status

The status of various resources can be set for the IJServer cluster. One of the following is selected as the status:

- enabled
- disabled

To make a resource unavailable in an IJServer cluster, specify "Disable". The disabled resource is not registered in the naming service, therefore it cannot be used by the application.

By default, a resource can be used (is enabled) when it is created.

The resource status can be set for the following units:

- Any IJServer cluster
- Interstage Java EE DAS services
- All IJServer clusters and Interstage Java EE DAS services

The procedure for changing the resource status is explained below. Resources can only be used when the status of both of the following is "enabled":

- The status of the resource itself (enabled/disabled)
- The status of the resource of the target (enabled/disabled)

Method to use the Interstage Java EE Admin Console

In the tree view, select [Resources], then select the corresponding resource type from the list of names that is displayed.

Specifying the Status when the Resource is Created

1. Select [New...].
2. To make the resource unavailable, unselect the "enabled" check box in [Status]. By default, a resource can be used (is enabled) when it is created. The status of the target resource changes to match the specified status. Furthermore, the status of the resource itself is always defined as enabled.

Changing the Status of the Resource

To change the resource status of each of the targets, follow the steps below (if the status is changed to "enabled" by this operation, the resource status itself will automatically change to "enabled"):

1. Select the resource name.
2. Click the [Target] tab.
3. Select the target name and click [enabled] or [disabled].

The status displayed when the window is displayed by selecting the resource name is "disabled" when the resource status itself is disabled. "Enabled" is only displayed when the resource status itself and the resource status each of the targets is enabled. If the resource status is changed to enabled, then as the resource status itself is automatically changed from disabled to enabled, the resource status of the targets that were enabled will also then be shown as "enabled".

In the following, the resource status of the target can be changed, but the resource status itself is not changed. For this reason, change the status by selecting the above resource name.

1. Select the IJServer cluster or server.
2. Click the [Resource] tab.

3. Select the resource whose status is to be changed and click [enabled] or [disabled].

Note

The jdbc/_TimerPool resource is defined during installation and is disabled by default. To use it, change the resource status itself and the resource status on the target to enabled.

Adding a Target

When a target is to be added to a resource that has already been created, the initial resource status of the target will be disabled, so change the resource status to enabled if necessary.

Method to Use the asadmin Command

Specifying the Status when the Resource is Created

The --enabled option of the various resource creation commands is used. By default, a resource can be used (is enabled) when it is created. The contents that are specified for the --enabled and --target options, and their relationship with the resource status, is shown below.

--enabled	--target	Status of the resource that was created
true	Specified	Can be used (is enabled) in the specified target (when the IJServer cluster name is specified, this is the IJServer cluster server instance). The resource status itself will also be enabled.
	Not specified	Enabled. The resource status itself will also be enabled, so the resource can be used by creating a reference from the target.
false	Specified	Unavailable (disabled) in the specified target (when the IJServer cluster name is specified, this is the IJServer cluster server instance). The resource status itself will also be enabled.
	Not specified	Disabled. The resource status itself will also be disabled, and any references from the target that are created will also be disabled, so the resource status itself must be changed to enabled before the resource can be used..

Creating Resource References

Resource references created by the create-resource-ref command can be used from the specified target.

Whether a target can use the resource when the resource reference is created depends on the resource status itself. For example, if the resource status is disabled, initially it will not be possible to use the resource on the target where the resource reference was created, so change the resource status to "enabled" if necessary.

Changing the Status of the Resource

The following definition items are specified using the set subcommand.

- When "false" is specified for a "servers" definition item that ends in ".enabled" (indicating whether the resource can be looked up), the resource will be disabled on the specified target. In IJServer cluster, change the status to the same value for each server instance. It is also recommended that "clusters" definition items that end in ".enabled" (indicating whether the resource can be looked up) also be changed to the same value. If "clusters" definition items are changed to the same value beforehand, and server instances are added to the IJServer cluster, the status of resources for the new server instances will be set to the same value.
- When false is specified for Definition Items of the Resources ending with ".enabled" that corresponds to the resource type, the resource is disabled in all IJServer clusters and Interstage Java EE DAS services.
- To enable a resource that has been disabled in a specific target, true (enabled) must be specified for both the servers and resources definition items ending with ".enabled" that correspond to the resource type. It is recommended that that the status is changed to the same value for each server instance.



After the resource status is changed, restart the target (IJSERVER cluster or Interstage Java EE DAS service) that uses it.

4.15.7 Procedure for Selecting the Target that Uses the Resources

Specify the target that is used to run the resource when that resource is used.

Resources for which a target has not been specified or for which the [Disabled] status was specified cannot be used.

To select the target, either specify it when the resource is created or add/delete the target reference after the reference is defined. Multiple targets can be specified for identical resources.

After the target is specified, set the status to [Enabled] to enable the resource.

The following can be selected as the target.

Target	Explanation
IJSERVER cluster name	The name of the IJSERVER cluster that uses the resource is specified. After this is specified, specify "true" for the Enabled setting to enable the resource.
server	The resource can be referenced from Interstage Java EE DAS service. This target should only be used during development.
domain, or nothing is specified	The resource is not referenced from any IJSERVER clusters or Interstage Java EE DAS services. ^(*1)

*1 'domain' cannot be specified for the target option of the commands that add or delete the target reference (for details, refer to "asadmin" > "create-resource-ref subcommand" and "delete-resource-ref subcommand").

The target can be changed using the Interstage Java EE Admin Console and asadmin command. For details, refer to the following manual.

- Interstage Java EE Admin Console Help
- create-resource-ref subcommand or delete-resource-ref subcommand

For the JDBC resources shown below that are defined by default, setup is performed using 'server' as the target. If the resource is to be used in an IJSERVER cluster, add the IJSERVER to the target reference and then set the status to [Enabled]. If these resources have been deleted, they can be created again manually or restored using the ijinit command (for details, refer to "ijinit").

- jdbc/___TimerPool
- jdbc/___default

4.16 Setting the Database Environment

Set up the database environment according to the following procedure.

1. Install a supported database.

For details on supported databases, refer to "Database".
2. Install the JDBC driver that is used to connect to the database.

For details on supported JDBC drivers, refer to "Database".
3. Set the environment so that the JDBC driver can be used.

For details on the method that is used to set the JDBC driver environment, refer to "[4.16.1 Setting the JDBC Driver Environment](#)".
4. Create the database.

For details on the method that is used to operate the database, refer to the manual of the database that is used.

5. Create a JDBC connection pool for the database.

For details on the method that is used to create the JDBC connection pool, refer to the Interstage Java EE Admin Console Help, or the "asadmin" command in the "Java EE Operation Commands" chapter. Additionally, the Ping functionality can be used for the connection pool that was created. For details, refer to ["4.16.7 Ping Functionality"](#).

6. Create the JDBC resource for the connection pool.

When the JDBC resource is created, the IJServer cluster or Interstage Java EE DAS service that uses the JDBC resource is specified as the target. For details on the target settings, refer to ["4.15.7 Procedure for Selecting the Target that Uses the Resources"](#).



Note

When a JDBC Connection Pool is deleted, all related JDBC resources can also be deleted in batch by setting 'true' for the cascade option. When deleting a JDBC Connection Pool using the Interstage Java EE Admin Console, processing is always executed with the 'true' being set for the cascade option. If the asadmin command is used, then the cascade option can be set to 'true' or 'false'.

4.16.1 Setting the JDBC Driver Environment

The methods that are used to set each JDBC driver environment are explained below. The items that are required to set the environment are different, depending on the JDBC driver that is used. These items are set for each environment as shown below. In addition to the settings for the IJServer cluster, the Interstage Java EE DAS service environment must be set to use various utility functionality (such as the [Ping Functionality](#) and [Functionality for the automatic generation of database tables](#)). Configure Interstage Java EE DAS service even when Interstage Java EE DAS service is used only as the development environment.

The "Type 2 JDBC driver" is a JDBC driver, part of which implemented in native code. The "Type 4 JDBC driver" is a JDBC driver that is all implemented in Java.

Setting a Class Path

Setting the IJServer Cluster

To set the JDBC driver JAR file (or ZIP file, when this is provided in ZIP format) so that it can be referenced by the IJServer cluster or Interstage Java EE DAS service, execute one of the procedures shown below.

For details on the class loader, refer to "Class Loader".

Setting a Driver that can Access the Shared Chain Class Loader

1. In the tree view, select [Settings], and then select the settings name.
2. Select [JVM Settings].
3. Click the [Path Settings] tab.
4. In the [Class Path Suffix] field, enter the fully-qualified path name of the driver JAR file.
5. Click [Save].
6. Restart the IJServer cluster or Interstage Java EE DAS service for the environment settings target.

When this is specified using the command, set the driver in the class path suffix of the set subcommand in the asadmin command and then restart the IJServer cluster or Interstage Java EE DAS service. For details, refer to ["7.8.15 Java VM Definition Items"](#).

Setting a Driver that can Access the Common Class Loader

1. Copy the driver JAR file to the following common directory.

Windows32/64

jar: [Java EE common directory]\domains\interstage\lib
Class: [Java EE common directory]\domains\interstage\lib\classes

Solaris32/64 **Linux32/64**

jar: [Java EE common directory]/domains/interstage/lib
Class: [Java EE common directory]/domains/interstage/lib/classes

2. Restart the IJServer cluster or Interstage Java EE DAS service for the environment settings target.

As shown above, the JAR file must be copied to the directory so that it can be set in the common class loader. For details on whether the JAR file can be copied or not, refer to the JDBC driver manual.

Setting a Path/library Path

Setting the IJServer Cluster

To set the path/library path so that it can be referenced by the IJServer cluster or Interstage Java EE DAS service when the Type 2 JDBC driver (either the Oracle OCI JDBC driver or the Symfoware JDBC driver) is used, execute one of the procedures shown below.

Windows32/64

Specify this value in the PATH environment variable used when the Interstage Java EE Node Agent service starts. Refer to ["4.16.4 Oracle OCI JDBC Driver \(Type 2\)"](#) or ["4.16.5 Symfoware JDBC Driver \(Type 2\)"](#) for the values to specify. For details on the Interstage Java EE Node Agent service environment variable settings, refer to ["4.4 Interstage Java EE Node Agent Service Operations"](#) - ["4.4.3 Environment Variable Settings"](#).

Solaris32/64 Linux32/64

1. In the tree view, select [Settings], and then select the settings name.
2. Select [JVM Settings].
3. Click the [Path Settings] tab.
4. In the [Native Library Path Suffix] field, specify the path/library path in the native library path. For information on the path/library path setting, refer to either ["4.16.4 Oracle OCI JDBC Driver \(Type 2\)"](#) or ["4.16.5 Symfoware JDBC Driver \(Type 2\)"](#).
5. Click [Save].
6. Restart the IJServer cluster or Interstage Java EE DAS service for the environment settings target.

When this is specified using the command, set the IJServer cluster in the native library path suffix of the set subcommand in the asadmin command and then restart the IJServer cluster. For details, refer to ["7.8.15 Java VM Definition Items"](#).

Setting Environment Variables

Setting the IJServer Cluster

If you are required to set an environment variable (not PATH, LD_LIBRARY_PATH, or CLASSPATH) that is used to run the JDBC driver, execute one of the procedures shown below.

1. Select the Clusters.
2. Select [<cluster name>].
3. In the [General] tab, click [<cluster name>-config].
4. Select [Process Settings].
5. In the [Environment Variable] field, enter the value in the PARAM=VALUE format.
Example: ORACLE_HOME=/opt/oracle
6. Click [Save].
7. Restart the IJServer cluster.

When this is specified using the command, set the IJServer cluster in the environment variable of the set subcommand in the asadmin command and then restart the IJServer cluster. For details, refer to ["7.8.15 Java VM Definition Items"](#).

Setting the Interstage Java EE DAS Service

Windows32/64

1. Add the environment variable to the OS system environment variable.

- Restart the system.

Solaris32/64 **Linux32/64**

- Add the environment variable to the OS system environment variable.
- Using the Console on which 1. was enabled, execute the `ijdasstop` and `ijdasstart` commands to restart the Interstage Java EE DAS service.

Resource Types

When the connection pool is created, one of the following can be selected as the resource type.

Specify the interface implemented by the data source class to be used. The resource type specified determines whether global transactions can be used and which method will be used to request the JDBC driver to acquire or discard a physical connection. If the resource type is not specified, or the data source class to be used has not implemented the interface specified for the resource type, the behavior will be the same as when `javax.sql.DataSource` is specified.

Resource type	Explanation
<code>javax.sql.DataSource</code>	This is specified when a local transaction is used. When the JDBC connection pool acquires a physical connection, the <code>getConnection</code> method of the <code>javax.sql.DataSource</code> interface is executed on the data source class. When the JDBC connection pool discards a physical connection, the "close" method of the <code>java.sql.Connection</code> interface is executed.
<code>javax.sql.XADataSource</code>	This is specified when a global transaction is used. When the JDBC connection pool acquires a physical connection, the <code>getXAConnection</code> method of the <code>javax.sql.XADataSource</code> interface is executed on the data source class. When a physical connection is discarded, the "close" method of the <code>javax.sql.XADataSource</code> interface is executed.
<code>javax.sql.ConnectionPoolDataSource</code>	This is specified when a local transaction is used. When the JDBC connection pool acquires a physical connection, the <code>getPooledConnection</code> method of the <code>javax.sql.ConnectionPoolDataSource</code> interface is executed on the data source class. When a physical connection is discarded, the "close" method of the <code>javax.sql.PooledConnection</code> interface is executed.



Note

Notes on Using the Pooling Feature Provided by the JDBC Driver

If the JDBC driver pooling feature is enabled, it will operate redundantly with the Interstage pooling feature. For this reason, disable the Interstage pooling feature. For information on the setting method, refer to "JDBC Connection Pool Definition Items".

For example, if the `oracle.jdbc.pool.OracleDataSource` class provided by Oracle is used and the `ConnectionCachingEnabled` property has been set to "true", disable the Interstage pooling feature.

Additional Properties

Properties required by the JDBC driver that is used, such as database name (URL), user name, and password, can be added to the connection pool definition.

The properties that can be specified are different depending on the JDBC driver, therefore refer to the JDBC driver manual for details.

When the JDBC driver JAR file can be referenced in the Interstage Java EE DAS service, the name of the property that can be specified is loaded from the `datasource.class.name` class that is displayed by default and then displayed. Additionally, the property default value is also loaded and displayed. For details on the `datasource.class.name` class that is displayed by default, refer to the explanation in "Setting the JDBC driver environment".

If the JDBC driver JAR file cannot be referenced in the Interstage Java EE DAS service, the following are displayed as the property name by default. Add/delete the property where necessary. If a value is not specified, the property is ignored.

- databaseName
- dataSourceName
- networkProtocol
- password
- portNumber
- roleName
- serverName
- user

Note

- Even when the JDBC driver JAR file can be referenced in the Interstage Java EE DAS service, when the definition is updated using the specified class name an error occurs and part of the property (such as the Oracle "connectionCachingEnabled" property) is not displayed. If this must be specified, add a property.
- When a password is specified as the property, it is recommended that passwordAlias is defined. For details on passwordAlias, refer to the explanation in "create-password-alias subcommand of the "asadmin" command".
- For the property name initial characters, it makes no difference whether upper or lower case is specified.
- If the property value type is java.util.Properties, specify the value in the property in the format "[name=value[,name=value]...] ". Special characters ("", "=", ",") cannot be used for "name" and "value".

Datasource Class Name Default Display

When Interstage Java EE Admin Console is used, the following information is displayed in the datasource class name by default.

Database vendor	Resource type	Datasource class name
Java DB	Javax.sql.DataSource	org.apache.derby.jdbc.ClientDataSource
	Javax.sql.XADataSource	org.apache.derby.jdbc.ClientXADataSource
	Javax.sql.ConnectionPoolDataSource	org.apache.derby.jdbc.ClientConnectionPoolDataSource
Oracle	Javax.sql.DataSource	oracle.jdbc.pool.OracleDataSource
	Javax.sql.XADataSource	oracle.jdbc.xa.client.OracleXADataSource
	Javax.sql.ConnectionPoolDataSource	oracle.jdbc.pool.OracleConnectionPoolDataSource
Microsoft SQL Server	Javax.sql.DataSource	com.microsoft.sqlserver.jdbc.SQLServerDataSource
	Javax.sql.XADataSource	-
	Javax.sql.ConnectionPoolDataSource	com.microsoft.sqlserver.jdbc.SQLServerXADataSource
Symfoware	Javax.sql.DataSource	-
	Javax.sql.XADataSource	-
	Javax.sql.ConnectionPoolDataSource	com.fujitsu.symfoware.jdbc2.SYMConnectionPoolDataSource

4.16.2 Java DB JDBC Driver (Type 4)

Setting a Class Path

The Java DB JDBC driver is bundled with the application server. When a Java SE stand-alone application is executed using the java command, set the following class path. When the Java DB JDBC driver is used in the IJServer cluster or application client container, there is no need to set a class path.

Embedded environments

Windows32/64

C:\Interstage\F3FMisjee\javadb\lib\derby.jar
C:\Interstage\F3FMisjee\javadb\lib\derbytools.jar

Solaris32/64 Linux32/64

/opt/FJSVisjee/javadb/lib/derby.jar
/opt/FJSVisjee/javadb/lib/derbytools.jar

Client/server environments

Windows32/64

C:\Interstage\F3FMisjee\javadb\lib\derbyclient.jar
C:\Interstage\F3FMisjee\javadb\lib\derbytools.jar

Solaris32/64 Linux32/64

/opt/FJSVisjee/javadb/lib/derbyclient.jar
/opt/FJSVisjee/javadb/lib/derbytools.jar



Note

The Java DB system directory is used as the current directory when the Java SE stand-alone application is executed.

Connection Pool Settings

Specify the following as the connection pool settings.

Specify the datasource class that implements the interface as the resource type.

Parameter	Value that is specified
Name	Any value
Resource type	Specify one of the following. <ul style="list-style-type: none">- javax.sql.DataSource- javax.sql.XADataSource- javax.sql.ConnectionPoolDataSource
Database vendor	Java DB (*1)
Datasource class name	Specify one of the following. Embedded environments <ul style="list-style-type: none">- org.apache.derby.jdbc.EmbeddedConnectionPoolDataSource40- org.apache.derby.jdbc.EmbeddedDataSource40- org.apache.derby.jdbc.EmbeddedXADataSource40 Client/server environments <ul style="list-style-type: none">- org.apache.derby.jdbc.ClientConnectionPoolDataSource40- org.apache.derby.jdbc.ClientDataSource40

Parameter	Value that is specified
	- org.apache.derby.jdbc.ClientXADataSource40

*1 Only specify the database vendor when the connection pool is created using the Interstage Java EE Admin Console.

Specify the name of the data source class used for each resource type, as indicated below.

Resource type	Environment	Datasource class name
javax.sql.DataSource	Embedded environments	org.apache.derby.jdbc.EmbeddedDataSource40
	Client/server environments	org.apache.derby.jdbc.ClientDataSource40
javax.sql.XADataSource	Embedded environments	org.apache.derby.jdbc.EmbeddedXADataSource40
	Client/server environments	org.apache.derby.jdbc.ClientXADataSource40
javax.sql.ConnectionPoolDataSource	Embedded environments	org.apache.derby.jdbc.EmbeddedConnectionPoolDataSource40
	Client/server environments	org.apache.derby.jdbc.ClientConnectionPoolDataSource40

Properties

The following properties generally have to be specified. For details on the properties that are specified, refer to "A.6 Datasource Properties".

Embedded environments

Property name	Value
DatabaseName	Specify the database name.
ConnectionAttributes	If the database does not exist, specify [;create=true] so that the database is created automatically when the connection is established. If the specified database already exists, the connection is made to the existing database.

Client/server environments

Property name	Value
User	Specify the user ID for the database.
Password	Specify the password for the database.
DatabaseName	Specify the database name.
ServerName	Specify the Java DB host name or IP address.
PortNumber	When the port number is changed from the default, specify the new port number. The default is 1527.
ConnectionAttributes	If the database does not exist, specify [;create=true] so that the database is created automatically when the connection is established. If the specified database already exists, the connection is made to the existing database.

4.16.3 Oracle Thin JDBC Driver (Type 4)

Setting Environment Variables

Examples of the environment variable settings that are used to run the Oracle JDBC driver according to the Java EE runtime environment JDK/JRE version and driver version are shown below. The Oracle home directory is the directory that is selected to install Oracle product software. Specify the Oracle home directory in which the Oracle that is used is installed. The JDBC driver storage directory can be any directory in which the required JDBC class/library is stored. To obtain the driver, it can be downloaded from the Oracle website directly,

or by installing Instant Client. For details, refer to the Oracle manual. Set the ORACLE_HOME and TNS_ADMIN environment variables when required.

Settings item	Driver/version	Value that is set (*1)
Class path	Oracle11g Release1	JDBC driver storage directory\ojdbc6.jar
		JDBC driver storage directory\orai18n.jar
	Oracle11g Release2	JDBC driver storage directory\ojdbc6.jar
		JDBC driver storage directory\orai18n.jar
		JDBC driver storage directory\ ucp.jar (*2)
	Oracle12c Release1	JDBC driver storage directory\ojdbc6.jar
		JDBC driver storage directory\orai18n.jar
		JDBC driver storage directory\ ucp.jar (*2)

*1 In Solaris/Linux, read "/" for "\".

*2 This value needs to be set only when the Oracle Universal Connection Pool (UCP) for JDBC function is used.

Connection Pool Settings

Specify the following as the connection pool settings.

Specify the datasource class that implements the interface as the resource type.

Parameter	Value that is specified
Name	Any value
Resource type	Specify one of the following. <ul style="list-style-type: none"> - javax.sql.DataSource - javax.sql.XADataSource - javax.sql.ConnectionPoolDataSource
Database vendor	Oracle (*1)
Datasource class name	Specify one of the following. <ul style="list-style-type: none"> - oracle.jdbc.pool.OracleDataSource - oracle.jdbc.xa.client.OracleXADataSource - oracle.jdbc.pool.OracleConnectionPoolDataSource - oracle.ucp.jdbc.PoolDataSourceImpl (*2) - oracle.ucp.jdbc.PoolXADataSourceImpl (*2)

*1 Only specify the database vendor when the connection pool is created using the Interstage Java EE Admin Console.

*2 If the Oracle Universal Connection Pool (UCP) for JDBC function is used, specify either oracle.ucp.jdbc.PoolDataSourceImpl or oracle.ucp.jdbc.PoolXADataSourceImpl.

Specify the name of the data source class used for each resource type, as below.

Resource type	Datasource class name
javax.sql.DataSource	oracle.jdbc.pool.OracleDataSource oracle.ucp.jdbc.PoolDataSourceImpl
javax.sql.XADataSource	oracle.jdbc.xa.client.OracleXADataSource oracle.ucp.jdbc.PoolXADataSourceImpl

Resource type	Datasource class name
javax.sql.ConnectionPoolDataSource	oracle.jdbc.pool.OracleConnectionPoolDataSource

Properties

Examples of the properties that are set for the JDBC driver are shown below. For details on the properties that can be specified, refer to the JDBC driver manual.

Property name	Value
User	The user ID is specified.
Password	The password ID is specified.
URL	The following is specified. The part in italics is the variable name. <ul style="list-style-type: none"> - jdbc:oracle:thin:@//host_name:port_number/service_name Example: jdbc:oracle:thin:@//localhost:1521/customer_db_service
ConnectionFactoryClassName (*1)	Specify either of the following values: If the data source class name is oracle.ucp.jdbc.PoolDataSourceImpl <ul style="list-style-type: none"> - oracle.jdbc.pool.OracleDataSource If the data source class name is oracle.ucp.jdbc.PoolXADataSourceImpl <ul style="list-style-type: none"> - oracle.jdbc.xa.client.OracleXADataSource

*1 If the Oracle Universal Connection Pool (UCP) for JDBC function is used, specify ConnectionFactoryClassName for the property name.



Note

Specify the user ID and password for the user name and password property names.

4.16.4 Oracle OCI JDBC Driver (Type 2)

Setting Environment Variables

Examples of the environment variable settings that are used to run the Oracle JDBC driver according to the Java EE runtime environment JDK/JRE version and driver version are shown below. The Oracle home directory is the directory that is selected to install Oracle product software. Specify the Oracle home directory in which the Oracle that is used is installed. The JDBC driver storage directory can be any directory in which the required JDBC class/library or shared OCI library is stored. To obtain the driver, install Instant Client. For details, refer to the Oracle manual. Set the environment variable, such as TNS_ADMIN, when required. When an OCI driver is used in a non-Instant Client environment, however, the ORACLE_HOME environment variable must be set.

Settings item	Driver/version	Value that is set (*1)
Class path	Oracle11g Release1	JDBC driver storage directory\ojdbc6.jar
		JDBC driver storage directory\orai18n.jar
	Oracle11g Release2	JDBC driver storage directory\ojdbc6.jar
		JDBC driver storage directory\orai18n.jar
		JDBC driver storage directory\ucp.jar (*3)
	Oracle12c Release1	JDBC driver storage directory\ojdbc6.jar
JDBC driver storage directory\orai18n.jar		
JDBC driver storage directory\ucp.jar (*3)		

Settings item	Driver/version	Value that is set (*1)
Windows32/64 Path	Oracle11g Release1	JDBC driver storage directory
	Oracle11g Release2	JDBC driver storage directory
	Oracle12c Release1	JDBC driver storage directory
Solaris32/64 Linux32/64 Library path (*2)	Oracle11g Release1	JDBC driver storage directory
	Oracle11g Release2	JDBC driver storage directory
	Oracle12c Release1	JDBC driver storage directory

*1 In Solaris/Linux, read "/" for "\".

*2 Set the library path in the order shown in the above table.

*3 This value needs to be set only when the Oracle Universal Connection Pool (UCP) for JDBC function is used.

Connection Pool Settings

Specify the following as the connection pool settings.

Specify the datasource class that implements the interface as the resource type.

Parameter	Value that is specified
Name	Any value
Resource type	Specify one of the following. <ul style="list-style-type: none"> - javax.sql.DataSource - javax.sql.XADataSource - javax.sql.ConnectionPoolDataSource
Database vendor	Oracle (*1)
Datasource class name	Specify one of the following. <ul style="list-style-type: none"> - oracle.jdbc.pool.OracleDataSource - oracle.jdbc.xa.client.OracleXADataSource - oracle.jdbc.pool.OracleConnectionPoolDataSource - oracle.ucp.jdbc.PoolDataSourceImpl (*2) - oracle.ucp.jdbc.PoolXADataSourceImpl (*2)

*1 Only specify the database vendor when the connection pool is created using the Interstage Java EE Admin Console.

*2 If the Oracle Universal Connection Pool (UCP) for JDBC function is used, specify either oracle.ucp.jdbc.PoolDataSourceImpl or oracle.ucp.jdbc.PoolXADataSourceImpl.

Specify the name of the data source class used for each resource type, as below.

Resource type	Datasource class name
javax.sql.DataSource	oracle.jdbc.pool.OracleDataSource oracle.ucp.jdbc.PoolDataSourceImpl
javax.sql.XADataSource	oracle.jdbc.xa.client.OracleXADataSource oracle.ucp.jdbc.PoolXADataSourceImpl
javax.sql.ConnectionPoolDataSource	oracle.jdbc.pool.OracleConnectionPoolDataSource

Properties

Examples of the properties that are set for the JDBC driver are shown below. For details on the properties that can be specified, refer to the JDBC driver manual.

Property name	Value
User	The user ID is specified.
Password	The password ID is specified.
URL	The following is specified. The part in italics is the variable name. - jdbc:oracle:oci:@ <i>tns_entry</i> Example: jdbc:oracle:oci:@MyTNSAlias
ConnectionFactoryClassName (*1)	Specify either of the following values: If the data source class name is oracle.ucp.jdbc.PoolDataSourceImpl - oracle.jdbc.pool.OracleDataSource If the data source class name is oracle.ucp.jdbc.PoolXADataSourceImpl - oracle.jdbc.xa.client.OracleXADataSource

*1 If the Oracle Universal Connection Pool (UCP) for JDBC function is used, specify ConnectionFactoryClassName for the property name.



Note

Specify the user ID and password for the user name and password property names.

4.16.5 Symfoware JDBC Driver (Type 2)

When using Symfoware Server, use of Symfoware Server Connection Manager is recommended.
For details on the Connection Manager settings, refer to the Symfoware Server manual.

Setting Environment Variables

Configure the following environment settings.

Windows32/64

Settings item	Value that is set
Path	Symfoware Server client functionality installation directory\JDBC\fjjdbc\bin Windows(R) system directory\ESQL\BIN
Class path	Symfoware Server client functionality installation directory\JDBC\fjjdbc\lib\fjsymjdbc2.jar

Solaris32

Settings item	Value that is set
Library path	FSUNrdb2b installation directory/FSUNrdb2b/lib (*1) JDBC driver installation directory/FJSVsymjd/fjjdbc/bin (*1)
Class path	JDBC driver installation directory/FJSVsymjd/fjjdbc/lib/fjsymjdbc2.jar (*1)

Linux32/64

Settings item	Value that is set
Library path	FJSVrdb2b installation directory/FJSVrdb2b/lib (*1) JDBC driver installation directory/FJSVsymjd/fjjdbc/bin (*!)
Class path	JDBC driver installation directory/FJSVsymjd/fjjdbc/lib/fjsymjdbc2.jar (*1)

*1 The default of the following directories is /opt.

- FSUNrdb2b installation directory
- FJSVrdb2b installation directory
- JDBC driver installation directory

Connection Pool Settings

Specify the following as the connection pool settings.

Specify the datasource class that implements the interface as the resource type.

Parameter	Value that is specified
Name	Any value
Resource type	Specify the following. (*1) - javax.sql.ConnectionPoolDataSource
Database vendor	Symfoware (*2)
Datasource class name	Specify the following. - com.fujitsu.symfoware.jdbc2.SYMConnectionPoolDataSource

*1 All functionality of the Symfoware JDBC driver pooling feature can be achieved using the Interstage pooling feature. For this reason, the Symfoware JDBC driver pooling feature is not supported. If Symfoware is used, use the Interstage pooling feature.

*2 Only specify the database vendor when the connection pool is created using the Interstage Java EE Admin Console.

Properties

The properties that can be specified are explained below. There is no need to edit properties that are not explained here. For details on the properties that can be specified, refer to the JDBC driver manual.

When Connection Manager is used

Property name	Value
User	Specify the user ID.
Password	Specify the password.
networkProtocol	The network protocol name that is used for connection is specified. Specify the following name. This is mandatory. - symfold
databaseName	Specify the SQL server name that has been specified by the SQLSERVER parameter in the APC operating environment file for the Connection Manager. This is mandatory.
Description	An explanation about the datasource is specified.
SYMOption	The JDBC driver options are specified. The following options can be specified: - lang - schema - ctuneparam

Property name	Value
	<ul style="list-style-type: none"> - javaconverter - default_isolation - default_readonly - autoclosestatement - statementcache <p>For details on the values that are set for each option, refer to the JDBC driver manual.</p> <p>[Example of the SYMOption description]</p> <p>ctuneparam =36;sOption='CLI_MAX_SQL=(255);CLI_WAIT_TIME=(30)'</p> <p>[Note]</p> <p>An empty character string cannot be specified for the value that is set for each option.</p> <p>Example: ctuneparam ='CLI_MAX_SQL='</p>

When Connection Manager is not used

Property name	Value
User	Specify the user ID.
Password	Specify the password.
networkProtocol	<p>The network protocol name that is used for connection is specified. Specify either of the following. This is mandatory.</p> <ul style="list-style-type: none"> - symfold (local) - symford (RDB2_TCP connection)
serverName	<p>The server host name or IP address that is used for connection is specified.</p> <p>This option can be specified when remote access (RDB2_TCP connection) is set as the protocol.</p>
portNumber	<p>The server port number that is used for connection is specified.</p> <p>This option can be specified when remote access (RDB2_TCP connection) is set. The valid value range is a number from 1 to 65535.</p>
databaseName	<p>Specify the data resource name that is used for connection. This is mandatory.</p> <p>When symfold (local) is specified as the protocol, the RDB system name must be added as shown below. There is no need to specify this for operations in which the RDB system name is not added.</p> <ul style="list-style-type: none"> - <RDB system name>.<data resource name>
Description	An explanation about the datasource is specified.
SYMOption	<p>The JDBC driver options are specified.</p> <p>The following options can be specified:</p> <ul style="list-style-type: none"> - lang - schema - ctuneparam - javaconverter - default_isolation - default_readonly - autoclosestatement

Property name	Value
	<p>- statementcache</p> <p>For details on the values that are set for each option, refer to the JDBC driver manual.</p> <p>[Example of the SYMOption description]</p> <p>ctuneparam =36;sOption='CLI_MAX_SQL=(255);CLI_WAIT_TIME=(30)'</p> <p>[Note]</p> <p>An empty character string cannot be specified for the value that is set for each option.</p> <p>Example: ctuneparam ='CLI_MAX_SQL='</p>

Notes on Using the Symfoware JDBC Driver (Type 2)

Note

The connection mode that is used for access to Symfoware on a different server system to Interstage is called "RDB2_TCP".

The following tasks are required to connect to Symfoware using RDB2_TCP.

These tasks are unnecessary for access to Symfoware on the same server system as Interstage.

- Setting the RDB2_TCP connection parameter
- Setting the RDB2_TCP port number

Setting the RDB2_TCP Connection Parameter

Add the following RDB2_TCP connection parameter to the Symfoware system operating environment file.

```
MAX_CONNECT_TCP = (n)
n : Maximum number of connections (the default value is 0)
```

Information

The system operating environment file is stored in the location that is specified when Symfoware is installed. When Symfoware is installed without the being specified, it is stored in the following location.

Windows32/64

[Drive on which Symfoware is installed]:\SFWETC\RDB\ETC\UXPSQLENV

Solaris32

/opt/FSUNrdb2b/etc/fssqlenv

Linux32/64

/opt/FJSVrdb2b/etc/fssqlenv

Note

If MAX_CONNECT_TCP is not set in the system operating environment file, or 0 is specified for the maximum number of connections, a Symfoware ODBC driver error is output when the Java EE component is executed. For details on the errors that are output, refer to the Symfoware manual.

Setting the RDB2_TCP Port Number

Set a RDB2_TCP port number in the following file.

Windows32/64

[system folder]\system32\drivers\etc\services

The system folder is the folder that has been set in the "SystemRoot" environment variable.

Solaris32 Linux32/64

/etc/services

Example

Assigning 2050 as the port number

RDBII 2050/TCP

4.16.6 Microsoft(R) SQL Server(TM) JDBC Driver (Type 4)

The Microsoft(R) SQL Server(TM) JDBC driver is not bundled with Microsoft(R) SQL Server(TM). Download a version of SQL Server(TM) JDBC Driver from the Microsoft Corporation homepage.

Setting Environment Variables

Configure the following environment settings.

Settings item	Driver version	Value that is set (*1)
Classpath	Microsoft SQL Server JDBC Driver 2.0	[MS SQL Server JDBC Driver folder]\sqljdbc_[version]\[language]\sqljdbc4.jar
	Microsoft SQL Server JDBC Driver 3.0	
	Microsoft JDBC Driver 4.0 for SQL Server	

*1 [version]: This is the Microsoft SQL Server JDBC Driver version (Example: 2.0, or 3.0, or 4.0).

[language]: This is the language that is used. For Japanese versions, "jpn" is used. For English versions, "enu" is used.

Connection Pool Settings

Specify the following as the connection pool settings.

Specify the datasource class that implements the interface as the resource type.

Parameter	Value that is specified
Name	Any value
Resource type	Specify one of the following. - javax.sql.DataSource - javax.sql.ConnectionPoolDataSource
Database vendor	Microsoft SQL Server (*1)
Datasource class name	Specify one of the following. - com.microsoft.sqlserver.jdbc.SQLServerDataSource - com.microsoft.sqlserver.jdbc.SQLServerXADataSource

*1 Only specify the database vendor when the connection pool is created using the Interstage Java EE Admin Console.

Specify the name of the data source class used for each resource type, as indicated below.

Resource type	Datasource class name
javax.sql.DataSource	com.microsoft.sqlserver.jdbc.SQLServerDataSource
javax.sql.XADataSource	-
javax.sql.ConnectionPoolDataSource	com.microsoft.sqlserver.jdbc.SQLServerXADataSource

Note

Notes on connection pool settings

- Resource type
SQL Server global transactions cannot be used. For this reason, do not specify "javax.sql.XADataSource" as the resource type.
- Datasource class name
"com.microsoft.sqlserver.jdbc.SQLServerXADataSource" implements "javax.sql.ConnectionPoolDataSource". For details, refer to the JDBC driver manual.

Properties

The following properties generally have to be specified. For details on the properties that are specified, refer to the JDBC driver manual.

Property name	Value
User	Specify the user ID.
password	Specify the password.
databaseName	Specify the database name.
serverName	Specify the database server IP address.
portNumber	When the port number is changed from the default, specify the new port number.

Note

Notes on using the Microsoft(R) SQL Server(TM) JDBC Driver (Type 4)

When SQL Server Express Edition or Developer Edition is used, remote connections are not possible by default. Refer to the Microsoft(R) SQL Server(TM) manual and configure the settings so that remote connections are possible.

4.16.7 Ping Functionality

Ping functionality is provided in this product to check whether the database can be accessed using the definition information that is set in the connection pool. It can be used according to the following methods:

- Clicking the JDBC connection pool Ping button using the Interstage Java EE Admin Console.
- Executing the ping-connection-pool subcommand of the asadmin command.

Note

- In the Ping function, the getConnection method is executed for the data source class to check whether the database can be accessed, therefore there might not be a check for properties not used for database access.
- If the Ping function fails to acquire a connection from the database, automatic reconnection will not be performed.
- When the Ping function is used, specify the user ID and password for the "user" and "password" additional properties for the JDBC connection pool.

- When the connection pool definition information is updated, restart the Interstage Java EE DAS service.
- When connection verification is enabled and table is specified as the verification method, the connection test will fail if the table specified for the table name does not exist in the corresponding database. Create the specified table before executing the connection test.
- If the transaction block level that is specified in the connection pool transaction block attribute is not supported by the database, the connection test will fail. For details, refer to the JDBC driver manual.
- If the connection test fails, refer to the exception information after "Target exception message:" and fix the cause of the exception.
In particular, if the following type of error occurs where the class or library cannot be found, check whether the class path or native library path settings are insufficient or incorrect.
 - java.lang.NoClassDefFoundError
 - no library name in java.library.path
- When the Oracle OCI driver is used, set the ORACLE_HOME environment variable. If the connection test is executed without ORACLE_HOME being set, the Interstage Java EE DAS service may stop according to the OCI driver specs. If the Interstage Java EE DAS service stops as a result of a mistaken execution, restart the service.

4.17 JMS Operation Methods

The following are explained in this section:

Operating the message broker

The broker that manages Destination that sends/receives messages must be started before the JMS client application. For details, refer to "[4.17.2 Operating the Message Broker](#)".

Preparation for sending/receiving JMS messages

To send/receive JMS messages to /from Java EE applications, a JMS connection factory and JMS send destination resources must be created. For details, refer to "[4.17.3 Preparation for Sending/Receiving JMS Messages](#)".

Operating JMS

To operate JMS, a JMS client application is operated. For details, refer to "[4.17.4 Operating JMS Client Applications](#)".

Message Broker Log

Operating information is recorded for the message broker. For details, refer to "[4.17.5 Message Broker Log](#)".

Access Logs for the Message Broker

Communication information is recorded for the message broker. For details, refer to "[4.17.6 Access Logs for the Message Broker](#)".

4.17.1 Design Methods

The of the following JMS design considerations and methods are used:

Purpose of using JMS	Design method
To perform processing automatically when messages arrive at their destinations	Message Listener is used.
To receive messages that were distributed while the JMS client application that receives messages was stopped in a Publish/Subscribe messaging model	Durable Subscription function is used.
To prevent messages from being lost	The message persistence function (*1) and transaction function (*2) is used.
To guarantee message processing and database processing across the board	The global transaction function (*2) is used.

Purpose of using JMS	Design method
To acquire only the information that the receiving application is interested in	The message selector function is used.
To avoid creating a physical storage destination for each sender/receiver in order to reduce resource usage	The message selector function is used.
To avoid changing the system environment every time a sender or receiver is changed (for system arrangements where senders and receivers change frequently)	The message selector function is used.
To look up messages that have accumulated in a queue in a point-to-point messaging model	The queue browser function is used.

*1 Since the message is made persistent, the overheads in the sending and receiving of the message are greater than when the persistence function is used. For this reason, there will be an impact on the performance of the sending and receiving of the message.

For the persistence and non-persistence of the message, `javax.jms.DeliveryMode.PERSISTENT` and `javax.jms.DeliveryMode.NON_PERSISTENT` are set for the message delivery mode. Set the message delivery mode using one of the following API:

- `javax.jms.MessageProducer.setDeliveryMode(int deliveryMode)`
- `javax.jms.MessageProducer.send(Message message, int deliveryMode, int priority, long timeToLive)`
- `javax.jms.MessageProducer.send(Destination destination, Message message, int deliveryMode, int priority, long timeToLive)`

*2 The transaction management feature using JTA (global transactions/local transactions) cannot be used in the Java EE application client and Java SE standalone applications. To use transaction control, use the transaction management feature that is provided by the resource manager.

4.17.2 Operating the Message Broker

The following processes are explained in this section:

- [Starting the Message Broker](#)
- [Stopping the Message Broker](#)
- [Stopping the Message Broker Temporarily](#)
- [Restarting the Message Broker](#)
- [Changing the Admin User Password](#)

Starting the Message Broker

For the JMS client application to send/receive messages to/from the physical storage target, the message broker that manages it must be started.

The following methods are used to start the message broker:

- using the `imqbrokerd` command
- as a service

Starting the Message Broker Using the `imqbrokerd` Command

Use the `imqbrokerd` command to start the message broker. For details, refer to "imqbrokerd".

```
imqbrokerd -name message broker name -port port number
```



The command prompt does not return after the `imqbrokerd` command is executed.

Starting the Message Broker as a Service

Normally, the message broker must be started up using a command. However, If you want it to start up automatically when the OS starts up, it can be created as a service according to the following procedure.

Windows32/64

Registration

The `imqsvcadm install` command is executed to register the service. The message broker is registered as a service with the name "Interstage Message Queue 4.1 Broker".

For details on the command, refer to "Java EE Operation Commands" - "imqsvcadm" - "install subcommand".

```
imqsvcadm install -args message broker start argument
```



Example

message broker service, the `imqsvcadm` command is executed as follows:

```
imqsvcadm install -args "-name test -port 37676"
```

Removal

The `imqsvcadm remove` subcommand is executed to remove the service registration. If the message broker is running when this command is executed, the message broker is removed from the service after it is stopped.

For details on the command, refer to "Java EE Operation Commands" - "imqsvcadm" - "remove subcommand".

```
imqsvcadm remove
```



Note

- Only one message broker can be created as a service.
- The information that was specified when the service was registered cannot be changed. To change this information, remove the service and then register it again using new information.
- To set the service logon account, set an account that has administrator privileges.

Solaris32/64 **Linux32/64**

Registration

Perform this task as the root user.

1. Edit the rc script

rc script ("ijmq") for the creation of services is provided in the following directory.

Storage destination

```
/opt/FJSVisjee/imq/etc/init.d
```

Copy the `ijmq` script to any location (in the following example, this is the `/tmp` directory).

```
cp /opt/FJSVisjee/imq/etc/init.d/ijmq /tmp
```

Next, edit the following items in the `ijmq` file. Put the value that is set in double quotation marks ("").

BROKER_PORT

This is the port number that is used by the broker process that is created as a service.

Note: The value that is set here is also used as the broker instance name.

BROKER_OPT

This is the broker options list that is set in the broker process.

When multiple options are specified, put a half-width space between each option.

VM_ARGS

This is the VM options list that is passed to the JVM when the broker process starts up.

When multiple options are specified, put a half-width space between each option.



Note

Only the above items should be edited, otherwise the rc script may not run correctly.



Example

They are set as follows:

```
#!/bin/sh
#
# ijmqr:      Interstage Application Server
#
# Version:    @(#) /etc/rc.d/init.d/ijmqr 1.0
#
# Author:     FUJITSU LIMITED
#
# chkconfig: 2345 97 3
# description: Interstage Application Server
# processname: ijmqr
#
# set broker port
BROKER_PORT="37676"
BROKER_OPT="-Dimq.system.max_count=1 -Dimq.system.max_size=1k"
VM_ARGS="-Xmx256m"
```

2. Store the rc script

Change the permissions of the file that was created in 1. to "0500", and then store it in /etc/init.d. To create/register multiple rc scripts, change the rc script file name and then register the rc script.

```
chmod 0500 /tmp/ijmqr
mv /tmp/ijmqr /etc/init.d/ijmqr01
```

3. Register the service

Solaris32/64

Create a symbolic link in /etc/rc0.d, /etc/rc2.d.

```
ln -s /etc/init.d/ijmqr01 /etc/rc0.d/K03ijmqr01
ln -s /etc/init.d/ijmqr01 /etc/rc2.d/S97ijmqr01
```

Linux32/64

Register the service using the chkconfig command.

```
/sbin/chkconfig --add ijmqr01
```

Removal

Perform this task as the root user.

1. Stop the service

If the service is running, stop it.

```
/etc/init.d/ijmq01 stop
```

2. Remove the service

Solaris32/64

Remove the symbolic link that was created in /etc/rc0.d, /etc/rc2.d.

```
rm /etc/rc0.d/K03ijmq01
rm /etc/rc2.d/S97ijmq01
```

Linux32/64

Remove the service using the chkconfig command.

```
/sbin/chkconfig --del ijqm01
```

3. Remove the rc script

Back up the rc script that is stored in /etc/init.d to another directory, or remove it.

Note

- The service that was registered is not removed when Interstage is uninstalled. Services that are no longer needed after Interstage is uninstalled must be removed.
- The rc script is not a target of IJServer cluster(Java EE) backup/restore. When IJServer cluster(Java EE) is backed up, back up the rc script file that was registered separately. Additionally, when IJServer cluster(Java EE) is restored, reexecute the task of registering the rc script that was backed up.

Checking the Status of the Message Broker

The status of the message broker can be checked using the imqcmd command list svc subcommand. For details on this command, refer to "imqcmd", "list svc Subcommands" in the "Java EE Operation Commands" chapter.

Example

When the message broker is running

"Successfully listed services." is output.

```
imqcmd list svc -b localhost:7676
Username: admin
Password:
Listing all the services on the broker specified by:

-----
Host          Primary Port
-----
localhost     7676

-----
Service Name  Port Number      Service State
-----
admin         49205 (dynamic)   RUNNING
httpjms      -                 UNKNOWN
httpsjms     -                 UNKNOWN
jms          49206 (dynamic)   RUNNING
ssladmin     dynamic          UNKNOWN
ssljms       dynamic          UNKNOWN

Successfully listed services.
```

When the message broker is not running

"IJMQ_C4003" is output.

```
imqcmd list svc -b localhost:7676
Username: admin
Password:
Listing all the services on the broker specified by:

-----
Host          Primary Port
-----
localhost    7676

2012/05/31 19:40:42 com.sun.messaging.jmq.jmsclient.ExceptionHandler throwConnectionException
WARNING: IJMQ_C4003: Error occurred on connection creation [localhost:7676]. - cause:
java.net.ConnectException: Connection
  refused: connect
Error while connecting to the broker on host 'localhost' and port '7676'.
com.sun.messaging.jms.JMSEException: IJMQ_C4003: Error occurred on connection creation [localhost:
7676]. - cause: java.net
t.ConnectException: Connection refused: connect
Please verify that there is a broker running on the specified host and port or
  use the '-b' option to specify the correct broker host and port.

Listing services failed.
```

Notes on when the Message Broker Starts Up

- Name resolution (IP address resolution) of the host that starts the message broker must be enabled from the hosts file content or the DNS settings.

DNS must be configured to run the network. If the network is not run using DNS, check the content of the hosts file stored in the folder below, and make additions/corrections where necessary.

For details on how to define entries in the hosts file, refer to "Common Notes for Interstage", "Entering Information in the Hosts File" in the "Notes on Interstage Operation" chapter of the Product Notes.

Windows32/64

```
[Windows(R) installation folder]\system32\drivers\etc\hosts
```

Solaris32/64 **Linux32/64**

```
/etc/hosts
```

- Start the message broker before starting the following service.
 - IJServer cluster
 - Interstage Java EE DAS service

After the IJServer cluster or Interstage Java EE DAS service is started, refer to the logs for each and make sure that ERROR or WARNING has not been output.

If the ERROR or WARNING messages listed below were output, then stop the IJServer cluster or Interstage Java EE DAS service, start the message broker, then restart the IJServer cluster or Interstage Java EE DAS service.

WARNING messages:

- ISJEE: WARNING: ISJEE_IJMQ_C4003: Error occurred on connection creation [{0}:{1}]. - cause: java.net.ConnectException: Connection refused: connect: ThreadID=10,ThreadName=main
- ISJEE: WARNING: ISJEE_MQJMSRA_RA4001: getJMXServiceURLList:Exception:Message=Caught exception when contacting portmapper.: ThreadID=10,ThreadName=main

ERROR messages:

- ISJEE: ERROR: ISJEE_MQJMSRA_MC4001: constructor:Aborting:JMSEException on createConnection=IJMQ_C4003: Error occurred on connection creation [{0}:{1}]. - cause: java.net.ConnectException: Connection refused: connect: ThreadID=10,ThreadName=main
- To change an IJServer cluster or Interstage Java EE DAS service environment that does not use JMS, to one that does, the following steps must always be performed:
 1. Stop the IJServer cluster or Interstage Java EE DAS service.
 2. Start the message broker.
 3. Restart the IJServer cluster or Interstage Java EE DAS service.

If the restart is not executed, JMS cannot be used correctly.

- It may take a few moments for the IJServer cluster or Interstage Java EE DAS service to start up if:
 - JMS is used, and
 - The message broker has not started when the IJServer cluster (*1) or Interstage Java EE DAS service started up, and
 - There are multiple enabled ConnectionFactory definitions for the JMS resource definition or multiple MDB applications have been deployed.

*1 The message broker has not started, so change the IJServer cluster startup wait time (the default is 600 seconds) if necessary to avoid the problem of the long time it takes for the IJServer cluster to start.

Stopping the Message Broker

Use the imqcmd command to stop the message broker. Specify the host name and port number that are used to run the stop target message broker. For details on the command, refer to "Java EE Operation Commands" - "imqcmd" - "shutdown bkr subcommand".

```
imqcmd shutdown bkr -b localhost:37676
```

Stopping the Message Broker Temporarily

Use the imqcmd command to pause the message broker. When the message broker is stopped temporarily, new connections can be accepted, messages can be received, and delivery can be stopped. For details on the command, refer to "Java EE Operation Commands" - "imqcmd" - "pause bkr subcommand".

```
imqcmd pause bkr -b localhost:37676
```

Restarting the Message Broker

Use the imqcmd command to restart the message broker. When the message broker is restarted, new message broker connections can be accepted, messages can be received, and delivery can be restarted. For details on the command, refer to "Java EE Operation Commands" - "imqcmd" - "resume bkr subcommand".

```
imqcmd resume bkr -b localhost:37676
```

Changing the Admin User Password

The message broker admin user and password are required when using the imqcmd command. For details on the admin user and password, refer to "5.7.1 Users and Groups".

The admin user 'admin' is created for the message broker by default. From a security perspective, the admin user 'admin' password must be changed.

To change the password, use the imqusermgr command update subcommand. For details on this command, refer to "imqusermgr".

Procedure

1. Start the message broker.
2. Change the admin user 'admin' password using the imqusermgr command update subcommand.
3. Stop the IJServer cluster.

4. Stop the Interstage Java EE DAS service.
5. Stop the message broker.
6. Start the message broker.
7. Start the Interstage Java EE DAS service.
8. Start the IJServer cluster.

4.17.3 Preparation for Sending/Receiving JMS Messages

This section explains the preparatory tasks that are required for sending and receiving messages to and from the physical storage destination by JMS client applications.

- Create an IJServer cluster. For details about creating IJServer clusters, refer to "[4.5 IJServer Cluster Operations](#)".
- Create the JMS resources ([JMS Connection Factory](#) and [JMS Send Destination Resources](#)) and physical storage destination.

The JMS connection factory and the JMS send destination resources are created according to the create-jms-resource subcommand of the asadmin command.

For details on creating the physical storage destination, refer to "[2.19.3 Physical Storage Destination Management](#)".

- Set the JMS host. For details, refer to "[JMS Host Settings](#)".

JMS Connection Factory

JMS connection factory (Connection Factory) is an object that is required to establish JMS client application and message broker connections. It creates the object that implements one of the following interfaces that are defined in the JMS specs and then registers it in JNDI.

- javax.jms.ConnectionFactory
- javax.jms.QueueConnectionFactory
- javax.jms.TopicConnectionFactory

The registered JMS connection factory can be used in the JMS client application via JNDI. The JMS client application issues the API that is defined in the JMS specs to the JMS connection factory that was acquired and establishes a connection with the message broker.

Use the Interstage Java EE Admin Console or the asadmin command to register, change, or delete the JMS connection factory (for details, refer to "[10.1 asadmin](#)"). For details on the definition items that are required when the JMS connection factory is registered or changed, refer to "[7.6.3 JMS Connection Factory Definition Items](#)".



Note

For connections to the message broker using the same JMS Connection Factory, the connections will not be shared within the same transaction. If "Shareable" is specified in the res-sharing-scope element of the deployment descriptor, it will be defined as "Unshareable".

JMS Send Destination Resources

The JMS send destination resources (Destination) specify the JMS client application and physical storage destination connection method. It creates the object that implements one of the following interfaces that are defined in the JMS specs and then registers it in JNDI.

- javax.jms.Topic
- javax.jms.Queue

The registered JMS send destination resources can be used in the JMS client application via JNDI. The JMS client application issues the API that is defined in the JMS specs to the send destination resources that were acquired and establishes a connection with the message broker.

Use the Interstage Java EE Admin Console or the asadmin command to register, change, or delete the JMS send destination resources (for details, refer to "[10.1 asadmin](#)"). For details on the definition items that are required when the JMS send destination resources are registered or changed, refer to "[7.6.4 JMS Send Destination Resource Definition Items](#)".

JMS Host Settings

Set the information that is required to run the JMS (for example, the host name that is used to run the message broker, or the message broker port number) as the JMS host in the IJServer cluster.

Use the Interstage Java EE Admin Console or the `asadmin` command to set the JMS host. For details on the `asadmin` command, refer to "10.19.3.10 Definition Items of the `configs.config.jms-service`". For details on the definition items that are required for the setting, refer to "7.8.10 JMS Service Definition Items".

Point

If the message broker admin user password was changed, the JMS host administrator password must be changed as well.

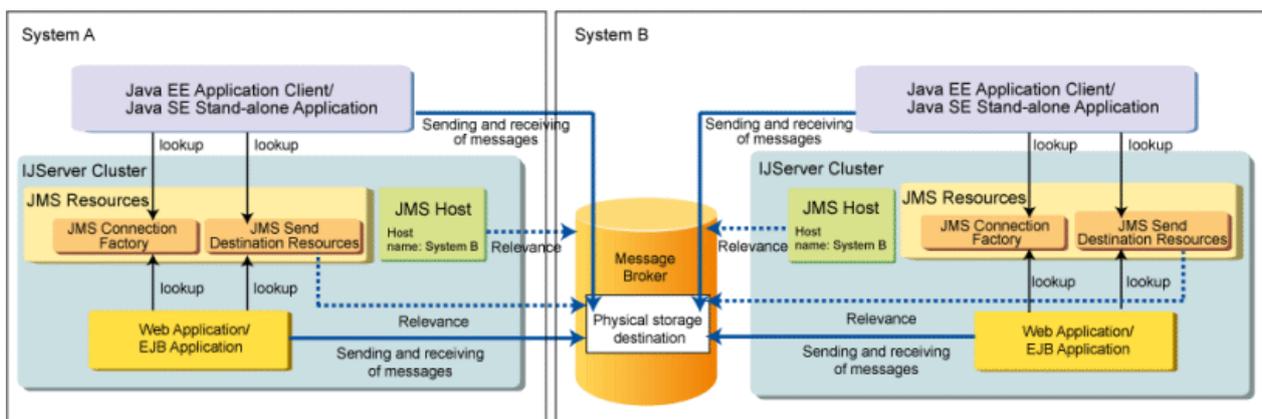
Relationship between the JMS Resources and the JMS Host

The message broker that sends and receives messages is determined according to the IJServer cluster JMS host setting that is accessed by the JMS client application.

When referencing the JMS connection factory and the JMS send destination resources, the JMS client application connects to the message broker after retrieving the JMS host information.

Example

A JMS client application usage example is shown below.



4.17.4 Operating JMS Client Applications

The methods that are used to operate the JMS client application are explained below.

- Create JMS client applications in accordance with the JMS 1.1 rules.
- Use the following applications to operate the JMS client application:
 - Web application or EJB application
 - Java EE application client
 - Java SE stand-alone application
- Before using the JMS client application, perform the following operations:
 - Start the IJServer cluster
 - [Configure the Environment Variables](#)
 - [Configure the Settings when the Initial Context is Generated](#)

Configure the Environment Variables

The environment variables shown below should only be configured when using a Java SE stand-alone application.

Windows32/64

PATH environment variable

- JDK path (*1)

CLASSPATH environment variable

- C:\Interstage\F3FMisjee\lib\javaee.jar
- C:\Interstage\F3FMisjee\lib\install\applications\jmsra\imqjmsra.jar
- C:\Interstage\F3FMisjee\lib\appserv-rt.jar
- C:\Interstage\F3FMisjee\lib\appserv-admin.jar
- C:\Interstage\F3FMisjee\imq\lib\jms.jar

Solaris32/64 **Linux32/64**

PATH environment variable

- JDK path (*1)

CLASSPATH environment variable

- /opt/FJSVisjee/lib/javaee.jar
- /opt/FJSVisjee/lib/install/applications/jmsra/imqjmsra.jar
- /opt/FJSVisjee/lib/appserv-rt.jar
- /opt/FJSVisjee/lib/appserv-admin.jar
- /opt/FJSVisjee/imq/lib/jms.jar

*1 If JDK has been installed more than once, set this so that the JDK path that is used is valid.

Configure the Settings when the Initial Context is Generated

The JNDI API must be used to generate the initial context and reference the JMS resources (JMS connection factory and JMS send destination resources).

When Using a Web Application or an EJB Application

These settings are unnecessary, because the JMS resources can be referenced from the naming service on the IJServer cluster.

When Using a Java EE Application Client

These settings are unnecessary, because the JMS resources can be referenced from the naming service on the IJServer cluster.

However, in order to identify which IJServer cluster is referenced, define the IIOP listener of the server to be accessed in the <target-server> tag of the Interstage deployment descriptor (sun-acc.xml) file.

For details on the Interstage deployment descriptor (sun-acc.xml), refer to "[3.2.3.6 Interstage ACC Deployment Descriptor \(sun-acc.xml\)](#)".

When Using a Java SE Stand-alone Application

To identify which IJServer cluster is referenced, set the IIOP listener of the server to be accessed in the following system property:

Property name	Value	Description
com.sun.appserv.iiop.endpoints	host name:port number	Specify the host name and IIOP listener port number of the server instance in the following format: host name:port number Example) host1:23700

Example

To configure this setting in the JavaVM option, configure the system property as follows:

```
-Dcom.sun.appserv.iiope.endpoints=host1:23700
```

4.17.5 Message Broker Log

The message broker records message broker information as a log. The message broker log is useful for the message broker investigation and status monitoring.

Output Destination

The log output destination is as follows:

Windows32/64

```
[Java EE common directory]\domains\interstage\imq\instances\${message broker name}\log
```

Solaris32/64 **Linux32/64**

```
[Java EE common directory]/domains/interstage/imq/instances/${message broker name}/log
```

Log File Name

- log.txt
- log_N.txt (N is a numerical value between 1 and 9)

A maximum of 10 log files (log.txt and log_1.txt-log_9.txt) are created.

Log Settings

The following settings can be changed:

Dead Message Logging Settings

Specify whether to write information related to dead messages to the log. In the default setting, information related to dead messages is not written to the log.

Conditions of Rotation

Log files rotate according to the condition specified for "Log size" or "Validity period". In the default setting, log files rotate at the point where either condition was satisfied.

The items shown below can be set for the rotation.

Rotation according to log size

Specify the maximum size of the log file. The default value is 256MB.

The log files are rotated when the size that was specified is reached.

Rotation according to validity period

Specify the period at which the files are rotated. The default value is 1 week.

The log files are rotated when the period that was specified after the log file was created has elapsed.

Time Zone of the Log Output Time

Specify the time zone of the log output time. In the default setting, the time zone of this region is used.

The log settings is set in the imqbrokerd command using the log function property.

For details on the log function property, refer to "[7.7.6 Log Function Properties](#)".

Output Format

The format of the log that is output is as follows.

```
[dd/MM/yyyy:HH:mm:ss.SSS Z] log body
```

Each output item is explained below.

dd/MM/yyyy:HH:mm:ss.SSS Z

The log output time is output.

Log body

For details on the log body message content, refer to "Java EE Messages". The log body is output as one of the following levels:

Levels	Meaning
ERROR	A message that indicates that system trouble may have occurred
WARNING	A warning that should be heeded, but system trouble may have not occurred,
INFO	A message that reports other information

4.17.6 Access Logs for the Message Broker

Access logs are recorded when applications communicate with the message broker. The access logs for the message broker are useful for investigating the message broker.

Output Destination

The access log output destination is as follows:

Windows32/64

```
[Java EE common directory]\domains\interstage\imq\instances\${message broker name}\log
```

Solaris32/64 **Linux32/64**

```
[Java EE common directory]/domains/interstage/imq/instances/${message broker name}/log
```

Log File Name

- accesslog.txt
- accesslog_N.txt (N is a numerical value between 1 and 9)

A maximum of 10 log files (accesslog.txt and accesslog_1.txt-accesslog_9.txt) are created.

Log Settings

The following settings can be changed:

Log Level for the Access Log

Specify whether to output the access log. In the default, the access log is output.

Conditions of Rotation

Log files rotate according to the condition specified for "Log size" or "Validity period". In the default setting, log files rotate at the point where either condition was satisfied.

The items shown below can be set for the rotation.

Rotation according to log size

Specify the maximum size of the log file. The default value is 256MB.

The log files are rotated when the size that was specified is reached.

Rotation according to validity period

Specify the period at which the files are rotated. The default value is 1 week.

The log files are rotated when the period that was specified after the log file was created has elapsed.

The log settings is set in the imqbrokerd command using the log function property.

For details on the log function property, refer to " [7.7.6 Log Function Properties](#)".

Output Content

Access logs output information indicating whether the following operations have been implemented.

Operation content	Security policies
When	<ul style="list-style-type: none"> - Access date/time [DD/MM/YYYY hh:mm:ss.SSS Z] - Thread ID - Thread name - Processing time
Where	<ul style="list-style-type: none"> - IP address
Who	<ul style="list-style-type: none"> - IP address (connection ID)
What	<ul style="list-style-type: none"> - Supplementary information
Why	<ul style="list-style-type: none"> - Status
How	<ul style="list-style-type: none"> - Event

Output Format

The output format of access logs is as follows:

```
[DD/MM/YYYY hh:mm:ss.SSS Z] <thread ID>(<thread name>) <IP address>(<connection ID>) <event> <status>
<processing time> (<supplementary information>)
```

Format Details

Item	Explanation	Example
DD	The day (two-digits)	01
MM	The month (two-digits)	09
YYYY	The year (four-digits)	2006
hh	The hour (in 24 hour notation)	17
mm	Minutes	35
ss	Seconds	12
SSS	Milliseconds	396
Z	Time difference with respect to UTC (+hhmm/-hhmm)	+0900
thread ID	Thread ID used by the message broker	ThreadID=25
IP address	Client IP address	192.0.2.10
connection ID	Connection ID	e3:bb:ec:44:9:f
event	Indicates the request to the message broker, or the result of a request. (*1)	AUTHENTICATE_REPLY
status	Event result (*2)	OK

Item	Explanation	Example
processing time	The time taken between the request and the response (in milliseconds) For processing where there is no response, "-----" is output.	0.012345
supplementary information	Detailed information about handling the event is output in "name=value" format. (*1)	JMQAuthType=digest

*1 For detailed information on the event and supplementary information, refer to "[Event Types of Access Logs](#)".

*2 For detailed information on the status, refer to "[Status Types of Access Logs](#)".

Event Types of Access Logs

Event	Supplementary information (*1)	Meaning
ACKNOWLEDGE_REPLY	MessageID ConsumerID	An "Acknowledge" request has been received. - MessageID Displays the message ID for which "Acknowledge" will be performed. - ConsumerID Displays the consumer ID that will perform "Acknowledge".
ADD_CONSUMER_REPLY	JMQConsumerID JMQSessionID JMQDestType JMQDestination JMQSelector JMQNoLocal JMQRurableName	A consumer creation request has been received. - JMQConsumerID Displays the consumer ID that has been created. - JMQSessionID Displays the session ID for the consumer creation source. - JMQDestType Displays the physical storage destination type used by the consumer. - JMQDestination Displays the physical storage destination name used by the consumer. - JMQSelector Displays "true" if a selector condition has been set, and "false" otherwise. - JMQNoLocal Displays "true" if consumers cannot receive messages sent by producers that use the same connection as the connection used by the consumers, and "false" otherwise. - JMQRurableName Displays the DurableSubscription name.
ADD_PRODUCER_REPLY	JMQProducerID JMQSessionID JMQDestType JMQDestination	A producer creation request has been received. - JMQProducerID Displays the producer ID that has been created. - JMQSessionID Displays the session ID for the producer creation source. - JMQDestType Displays the physical storage destination type used by the producer.

Event	Supplementary information (*1)	Meaning
		<ul style="list-style-type: none"> - JMQDestination Displays the physical storage destination name used by the producer.
AUTHENTICATE_REPLY	JMQAuthType	<p>Connection authentication processing has been received.</p> <ul style="list-style-type: none"> - JMQAuthType Displays the user authentication method. Here, "digest" is displayed.
AUTHENTICATE_REQUEST	None	The message broker has sent a request for user authentication to the client.
BROWSE_REPLY	JMQConsumerID JMQSelector JMQDestination	<p>A queue browser creation request has been received.</p> <ul style="list-style-type: none"> - JMQConsumerID Displays the consumer ID that has been created. - JMQSelector Displays "true" if a selector condition has been set, and "false" otherwise. - JMQDestination Displays the physical storage destination name used by the queue browser.
COMMIT_TRANSACTION_REPLY	JMQTransactionID	<p>A commit request for a transaction/JTA transaction for the Resource Manager has been received.</p> <ul style="list-style-type: none"> - JMQTransactionID Displays the ID of the transaction to be manipulated.
CREATE_DESTINATION_REPLY	JMQDestType JMQDestination	<p>A request to create a physical storage destination has been received.</p> <ul style="list-style-type: none"> - JMQDestType Displays the physical storage destination type to be created. - JMQDestination Displays the physical storage destination name to be created.
CREATE_SESSION_REPLY	JMQSessionID JMQAckMode	<p>A session creation request has been received.</p> <ul style="list-style-type: none"> - JMQSessionID Displays the session ID that has been created. - JMQAckMode Displays the confirmation response method for the message to be received. The value output will be one of the following four patterns. <ul style="list-style-type: none"> - SESSION_TRANSACTED - AUTO_ACKNOWLEDGE - CLIENT_ACKNOWLEDGE - DUPS_OK_ACKNOWLEDGE
DELETE_CONSUMER_REPLY	JMQConsumerID	<p>A consumer deletion request has been received.</p> <ul style="list-style-type: none"> - JMQConsumerID Displays the consumer ID to be deleted.
DELETE_PRODUCER_REPLY	JMQProducerID	<p>A producer deletion request has been received.</p> <ul style="list-style-type: none"> - JMQProducerID Displays the producer ID to be deleted.

Event	Supplementary information (*1)	Meaning
DELIVER_REPLY	JMQConsumerID	A message distribution request has been received. - JMQConsumerID Displays the consumer ID to which the message is to be distributed.
DESTROY_DESTINATION_REPLY	JMQDestType JMQDestination	A request to delete a physical storage destination has been received. - JMQDestType Displays the physical storage destination type to be deleted. - JMQDestination Displays the physical storage destination name to be deleted.
DESTROY_SESSION_REPLY	JMQSessionID	A session deletion request has been received. - JMQSessionID Displays the session ID to be deleted.
END_TRANSACTION_REPLY	JMQTransactionID	A request to terminate a JTA transaction has been received. - JMQTransactionID Displays the ID of the transaction to be manipulated.
GOODBYE_REPLY	None	A request to disconnect from the message broker has been received.
HELLO_REPLY	None	A request to connect to the message broker has been received.
PREPARE_TRANSACTION_REPLY	JMQTransactionID	A request to prepare to commit a JTA transaction has been received. - JMQTransactionID Displays the ID of the transaction to be manipulated.
RECOVER_TRANSACTION_REPLY	JMQTransactionID	A request to recover a JTA transaction has been received. - JMQTransactionID Displays the ID of the transaction to be manipulated.
REDELIVER	JMQSetRedelivered JMQTransactionID	A message redistribution request has been received. - JMQSetRedelivered Displays "true" for messages for which reception processing is in progress, and "false" for messages that have been distributed in advance. - JMQTransactionID Displays the ID of the transaction to be manipulated.
ROLLBACK_REPLY	JMQTransactionID JMQRedeliver	A request to roll back a JTA transaction has been received. - JMQTransactionID Displays the ID of the transaction to be manipulated. - JMQRedeliver Displays "true" for messages for which reception processing is in progress, and "false" for messages that have been distributed in advance.
SEND_REPLY	MessageID JMQDestType JMQDestination	A message transmission request has been received. - MessageID Displays the message ID of the message to be sent. - JMQDestType Displays the physical storage destination type to which the message is to be sent.

Event	Supplementary information (*1)	Meaning
		<ul style="list-style-type: none"> - JMQDestination Displays the physical storage destination name to which the message is to be sent.
SET_CLIENTID_REPLY	JMQClientID	A request to set the client ID has been received. <ul style="list-style-type: none"> - JMQClientID Displays the client ID to be set for the connection.
START	None	A connection start request has been received.
	JMQSessionID	A request to start message distribution processing has been received. <ul style="list-style-type: none"> - JMQSessionID Displays the session ID for which message distribution processing will start.
START_TRANSACTION_REPLY	JMQTransactionID JMQXAFlags JMQXAOnePhase JMQSessionID	A request to start a transaction/JTA transaction for the Resource Manager has been received. <ul style="list-style-type: none"> - JMQTransactionID Displays the ID of the transaction that has started. <ul style="list-style-type: none"> - JMQXAFlags Displays "true" for XA transactions and "false" otherwise. <ul style="list-style-type: none"> - JMQXAOnePhase Displays "true" for XA transactions that are one-phase commit transactions, and "false" otherwise. <ul style="list-style-type: none"> - JMQSessionID Displays the session ID of the session for which the transaction has been created.
STOP_REPLY	None	A connection stop request has been received.
	JMQSessionID	A request to stop message distribution processing has been received. <ul style="list-style-type: none"> - JMQSessionID Displays the session ID for which message distribution processing is to stop.

*1 The supplementary information listed in the table is output to access logs only when values have been set.

Status Types of Access Logs

Status	Definition details
OK	The processing has terminated normally.
NOT_MODIFIED	Changing of the transaction status failed.
BAD_REQUEST	An invalid parameter has been specified.
FORBIDDEN	Access has been rejected.
NOT_FOUND	The resources cannot be found.
NOT_ALLOWED	The specified parameter is invalid.
TIMEOUT	A timeout has occurred.
CONFLICT	A conflict has occurred as a result of the requested operation.
GONE	The status of the transaction is unknown.
PRECONDITION_FAILED	The status is not suitable for the request.

Status	Definition details
INVALID_LOGIN	Authentication has failed.
RESOURCE_FULL	The maximum number of messages that can accumulate has been exceeded.
ENTITY_TOO_LARGE	The message is too large.
ERROR	An internal error has occurred.
UNAVAILABLE	The status does not allow this operation to be performed.

4.18 Connector Operation Method

The operation method for using the connector is explained in this section.

4.18.1 Deploying the Connector Module and Creation of Resource Definitions

The connector operation mode depends on the resource adapter type. The procedure from deployment to the creation of various resources is shown below. It is executed using the Interstage Java EE Admin Console or `asadmin` command.

- Outbound resource adapter
 1. Deploy the connector module contained in the stand-alone or ear module
 2. Create the connector connection pool
 3. Create the connector resources
 4. Create the managed object resources
- Inbound resource adapter
 1. Deploy the connector module contained in the stand-alone or ear module
 2. Set the application that is used for receiving data (Message-Driven Bean)
 - For details, refer to "[2.8.2 Message-driven Bean Runtime Environment](#)".
 3. Create the managed object resources

Create managed object resources when required. Additionally, resource adapter definition information and definition information about various resources can also be set using the Interstage Java EE Admin Console or `asadmin` command. Also refer to the following information.

- Explanation about related resources and main functionality:
 - Refer to "[2.20 Functionality Provided in the Connector](#)".
- Details on connector connection pool items that can be tuned:
 - Refer to "Connector Tuning".
- Items that can be specified using the `asadmin` connector-related subcommands/set subcommand:
 - Refer to the "[10.1 asadmin](#)".

Deploying the Connector Module

Resource adapter definition information can be created for the deployment of the connector module. The resource adapter name is the only information that is mandatory for operation. The name that is specified must be unique in the IJServer cluster, and set for the connector module through deployment. Except for the resource adapter name, all items are optional and are defined when required. For details on deployment, refer to "[4.6 Deploying Applications](#)".

Details on the Resource Adapter Definition Information

Resource adapter name

This is the name that is used to identify the connector module that was deployed. It is used when the connector connection pool is created, and for connections of applications used for receiving data (Message-driven Bean).

As shown below, the methods to specify stand-alone deployment and deployment with the ear module are different (this can only be specified by a user that shares the application name).

- When stand-alone deployment is used:

Resource adapter name = "application name"

- When deployment with the ear module is used:

Resource adapter name = "application name#Character string without the file extension (.rar) from the connector module name"



Example

Deploying sampleRar.rar with sampleEar.ear (the default application name)

Resource adapter name: sampleEar#sampleRar

Thread pool ID

This is the identifier for the thread pool. It is used when the user specifies a thread pool that is used by WorkManager . If this was not specified, the default thread pool is used. For details, refer to "[2.20.6 Execution of Work when the Thread Pool is Used](#)."

Creating the Resource Adapter Definition Information

As shown below, the methods to specify stand-alone deployment and deployment with the ear module are different.

- When stand-alone deployment is used:

If the Interstage Java EE Admin Console is used for deployment, then this can be created during deployment or in the edit window after the deployment. If the asadmin command is used for deployment, this is created using the create-resource-adapter-config subcommand (*1).

- When deployment with the ear module is used:

This can be created after the deployment, using the asadmin command create-resource-adapter-config subcommand (*1).

*1 For details, refer to "[10.1.14.30 create-resource-adapter-config Subcommand](#)".

Use the asadmin command set subcommand to update the resource adapter definition information that was created. If the resource adapter definition information is updated, restart the IJServer cluster or Interstage Java EE DAS service that the connector module was deployed to, in order to reflect the changes.

Creating the Connector Connection Pool

This is created by specifying the following information.

- Pool name
- Resource adapter name for the connector module that was deployed
- Connection definition name (ConnectionFactory interface name)
- Additional properties

Creating Connector Resources

This is created by specifying the following information.

- JNDI name that is used to look up ConnectionFactory in JNDI
- Pool name for the connector connection pool that was created
- IJServer cluster name that enables connector resource reference

Creating Managed Object Resources

This is created by specifying the following information.

- JNDI name that is used to look up management target objects in JNDI

- Resource adapter name for the connector module that was deployed
- Resource type (management target object interface name)
- JIIServer cluster name that enables managed object resource reference
- Additional properties

Connector Environment Settings

To run a connector that uses native libraries, refer to "[2.23.6 Note About the Use of the Class Loader](#)" - "Note on the use of connector" and then configure the environment settings.



Note

Notes on the Embedded Resource Adapter

An integrated resource adapter is provided in Interstage Java EE.

- jmsra
jmsra is an embedded resource adapter for JMS. When the JMS resource is created, the corresponding Connector Connection Pool/connector resource/managed object resource is created automatically.
- jaxr-ra, __ds, __cp, __xa
jaxr-ra, __ds, __cp, and __xa are the embedded resource adapters used in the system internally. Do not specify the integrated resource adapter name as the resource adapter name used at the time of the deployment. Do not specify a non-jmsra integrated resource adapter name as the resource adapter name used when the resource is created. If a non-jmsra name is specified, the behavior cannot be guaranteed.



Note

Conditions for running the resource adapter as a Java EE Connector Architecture1.0 terms resource adapter

If ra.xml for XML Schema satisfies all conditions below, then it will run as a resource adapter compliant with the Java EE Connector Architecture1.0 terms. Otherwise, it will be recognized as a resource adapter compliant with the Java EE Connector Architecture1.5 terms.

- There is no resource adapter class definition.
The `<connector><resourceadapter><resourceadapter-class>` tag is not specified, or is set to a null string.
- There is no inbound resource adapter definition.
The `<connector><resourceadapter><inbound-resourceadapter>` tag is not specified.
- There is no managed object definition.
There `<connector><resourceadapter><adminobject>` tag is not specified.
- Only one outbound resource adapter connection definition has been specified.
There is only one `<connector><resourceadapter><outbound-resourceadapter><connection-definition>` tag.

4.18.2 Undeploying the Connector Module and Deleting Resource Definitions

The procedure from the deletion of various resources until undeployment of the connector module is shown below. This is executed using the Interstage Java EE Admin Console or `asadmin` command.

1. Delete the connector resources/managed object resources
2. Delete the connector connection pool
3. Delete the resource adapter definition information

4. Undeploy the connector module contained in the stand-alone or ear module

The Cascade Option

The 'cascade' option is an option for the deletion of related resources in batch. When undeploying a connector module or deleting a Connector Connection Pool using the Interstage Java EE Admin Console, processing is always executed with the 'true' being set for the cascade option. If the `asadmin` command is used, then the cascade option can be set to 'true' or 'false'. The behavior for when true/false is set for the cascade option is explained below.

When a stand-alone connector module is undeployed:

When true is set for the cascade option, the deletion of related resources is performed in batch at the time of undeployment. When false is set for the cascade option, the undeployment will fail if there are related resources. "Related resources" refers to the connector connection pool, connector resources, managed object resources, and resource adapter definition information.



Regardless of what is specified for the cascade option, connector modules contained in ear can be undeployed without deleting the resources. To redeploy the same module by taking over prebuilt resources, specify the same resource adapter name at the time of deployment. Additionally, to inherit managed object resources, set the resource adapter name after redeployment.

When a connector connection pool is deleted:

When true is set for the cascade option, the deletion of connector resources is performed in batch when the connector connection pool is deleted. When false is set for the cascade option, the deletion will fail if there are connector resources that have referenced the connection pool.

4.19 Relationship between JMS Resources and Connector Resources

JMS uses an integrated connector resource adapter called 'jmsra'. The JMS user operates the JMS resources using the JMS resources window of the Interstage Java EE Admin Console or the JMS resources subcommand of the `asadmin` command. For this reason, there is normally no need to be conscious of the resource adapter.

The JMS resources have been defined as connector resources, therefore a connector resources-related message might be output when the JMS resource definition is edited or operated. Refer to the explanation below in this case.



When a JMS resource is operated using the connector window of the Interstage Java EE Admin Console or the `asadmin` command connector subcommand, there is no definition check for JMS (for example, mandatory item check or character set check).

To operate JMS resources, use the JMS resources window of the Interstage Java EE Admin Console or the JMS resources subcommand of the `asadmin` command.

Relationship between JMS Resources and Connector Resources

The relationship between the JMS resources and the connector resources is as follows:

JMS resource	Connector resource	Explanation
JMS connection factory	Connector Connection Pool	Resource that pools and manages connections
	Connector resource	Resource for access to connection targets
JMS send destination resource	Managed object resource	Resource specific to the resource adapter

The JMS connection factory is defined as the Connector Connection Pool and the connector resource. The JMS send destination resource is defined as the managed object resource.

To create a new JMS resource, create the corresponding connector resource, as shown below. When the resource is updated/deleted, the corresponding connector resource is also updated/deleted.

Creating a New JMS Connection Factory

Create the connector resources shown below.

1. Create the Connector Connection Pool.

The JMS connection factory JNDI name is used as the Connector Connection Pool name, and 'jmsra' is used as the resource adapter.

2. Create the connector resource.

The JMS connection factory JNDI name is used as the connector resource JNDI name, and the Connection Pool just created is used as the Connector Connection Pool.

If there is an existing Connector Connection Pool with the same name as the 'jmsra' resource adapter but no connector resource with the same name, a connector resource is created for the existing Connector Connection Pool. If there any non-'jmsra' Connector Connection Pools, an error will occur.

Creating a New JMS Send Destination Resource

Create the managed object resource. The JMS send destination resource JNDI name is used as the managed object resource JNDI name.

Relationship between JMS Resource and Connector Resource Definitions

The relationship between the JMS resources and the connector resources is explained below. '-' means that there are no corresponding items.

JMS Connection Factory

The relationship between the JMS connection factory and connector resource definition items is shown below. To edit the JMS connection factory definition items using the `asadmin` command set subcommand, edit the definition item that corresponds to `resources.connector-connection-pool`.

JMS connection factory	Connector Connection Pool	Connector resource
JNDI name	Name	JNDI name
- (This is fixed as 'jmsra')	Resource adapter	-
Resource type	Connection definition	-
Explanation	-	Explanation
-	Explanation	-
Status	-	Status
Initial and minimum pool size	Initial and minimum pool size	-
Maximum pool size	Maximum pool size	-
Pool resize quantity	Pool resize quantity	-
Idle timeout	Idle timeout	-
Maximum wait time	Maximum wait time	-
Connection verification	Connection verification	-
For all trouble	For all trouble	-
Transaction support	Transaction support	-
Additional property	Additional property	-
-	Security map	-
Target specified	-	Target specified

JMS Send Destination Resource

The relationship between the JMS send destination resource and managed object resource definition items is shown below. To edit the JMS send destination resource definition items using the `asadmin` command set subcommand, edit the definition item that corresponds to `resources.admin-object-resource`.

JMS send destination resource	Managed object resource
JNDI name	JNDI name
Physical send destination name	- (This is specified for the 'Name' property)
Resource type	Resource type
- (This is fixed as 'jmsra')	Resource adapter
Explanation	Explanation
Status	Status
Additional property	Additional property
Target specified	Target specified

4.20 J2EE/Java EE Linkage Configuration

This section explains the configuration for the J2EE/Java EE linkage function.

4.20.1 Calling an Application in a Java EE Runtime Environment from a J2EE Runtime Environment

This section explains the environment settings for calling an application in a Java EE runtime environment from a J2EE runtime environment.

Building a J2EE Runtime Environment

If the J2EE runtime environment IJServer and the Java EE runtime environment IJServer cluster linked to it are on different machines, then install the Interstage Java EE or Interstage Java EE client package in the J2EE runtime environment.

Setting the IJServer Environment in the J2EE Runtime Environment

Set the J2EE runtime environment IJServer environment settings as shown below so that the Interstage Java EE JNDI function can be used.

1. Add the following to the WorkUnit application-specific library path:

- Client stub JAR file (*1)

Windows32/64

- C:\Interstage\F3FMisjee\lib\appserv-rt-client.jar
- C:\Interstage\F3FMisjee\lib\appserv-ext.jar

Solaris32/64 **Linux32/64**

- /opt/FJSVisjee/lib/appserv-rt-client.jar
- /opt/FJSVisjee/lib/appserv-ext.jar

*1 After the application is deployed to the Java EE runtime environment IJServer cluster, this file can be obtained using the `asadmin` command `get-client-stubs` subcommand (for details, refer to "`asadmin`" > "`get-client-stubs` subcommand").

2. For class loader separation, select "Separate between EARs (default)" or "Separate All".

4.20.2 Calling an Application in a J2EE Runtime Environment from a Java EE Runtime Environment

This section explains the environment settings for calling an application in a J2EE runtime environment from a Java EE runtime environment

How to Specify the EJB Application to be Called

When calling an EJB application running on an IJServer in a J2EE runtime environment via IIOP communications, the following two methods can be used to specify the EJB application to be called in the Java EE runtime environment.

- Linking to Another Naming Service

Define a reference name and a JNDI name in the Interstage deployment descriptor file. In this case, for the JNDI name specify only the name of the EJB application that was specified when the EJB application was deployed in the J2EE runtime environment.

Example

In the following example, the name of the EJB application is "CartBean".

```
<ejb-ref>
  <ejb-ref-name>ejb/MyEjb</ejb-ref-name>
  <jndi-name>CartBean</jndi-name>
</ejb-ref>
```

For the naming service URL settings for linking to another naming service in the IJServer cluster settings, specify the host name and port number of the host on which the naming service for the J2EE runtime environment to be used is running.

Example

In the following example, the host name is "host1" and the port number is "8002".

```
host1:8002
```

- Making Definitions in the Interstage Deployment Descriptor File

Define a reference name and a JNDI name in the Interstage deployment descriptor file. In this case, for the JNDI name specify the EJB application in the J2EE runtime environment using the rules of the Interoperable Naming Service (INS), as indicated below.

```
corbaname:iiop: <host name>:<port number>#<EJB application name>
```

The following table explains the values that are specified for each item.

Value that is specified	Explanation
host name	The name of the host on which the naming service for the J2EE runtime environment to be used is running.
port number	The port number of the host on which the naming service for the J2EE runtime environment to be used is running (default: 8002).
EJB application name	The name of the EJB application that was specified when the EJB application was deployed to the J2EE runtime environment.

Example

In the following example, the host name is "host1", the port number is "8002", and the EJB application name is "CartBean".

```
<ejb-ref>
  <ejb-ref-name>ejb/MyEjb</ejb-ref-name>
```

```
<jndi-name>corbaname:iiop:host1:8002#CartBean</jndi-name>
</ejb-ref>
```

.....

Classpath Settings

For the IJServer cluster in the calling-side Java EE runtime environment, the client distributable generated when the EJB application being called was deployed to the J2EE runtime environment must be set in the classpath. For information on client distributables, refer to the "J2EE User's Guide".

4.21 J2EE/Java EE Linkage Operation

This section explains J2EE/Java EE linkage operations.

4.21.1 Calling an Application in a Java EE Runtime Environment from a J2EE Runtime Environment

There are no real differences in the methods used to run the J2EE runtime environment IJServer and the Java EE runtime environment IJServer cluster.

Before starting the application, start the Java EE runtime environment IJServer cluster first, and then start the J2EE runtime environment IJServer.



If an error occurs when the application on Interstage Java EE is called from the J2EE runtime environment, refer to "Messages".

.....

4.21.2 Calling an Application in a J2EE Runtime Environment from a Java EE Runtime Environment

The methods used to run IJServer WorkUnits in the J2EE runtime environment and IJServer clusters in the Java EE runtime environment are the same as the normal operating methods. Perform operations by referring to the respective manuals.

4.22 Java EE Application Logs

Server Logs/Java VM logs/HTTP Access Logs/IIOP Access Logs/HTTP Trace Logs

Java EE provide the logs listed below, which are useful for troubleshooting:

IJServer clusters

- Server logs
- Java VM logs
- HTTP access logs
- FJVM logs (*1)
- IIOP access logs
- HTTP trace logs

*1 For details on FJVM logs, refer to the "Tuning Guide", section "JDK/JRE Tuning" > "FJVM" > "FJVM Log".

Interstage Java EE DAS services

- Server logs
- HTTP access logs
- IIOP access logs

- HTTP trace logs

Interstage Java EE Node Agent services

- Server logs

In the Interstage Java EE DAS service, the FJVM log is not output, even if the Java process terminates abnormally and the Java VM has been configured to output it.

Log File Directory

For details on the log file output destination, refer to "List of Definition Items" > "[7.2.1 Logger Definition Items](#)", entry "Log output directory".

Changing the Log File Directory

The log file directory can be changed using the Interstage Java EE Admin Console or the `asadmin` command.

If the specified value does not start with `${com.sun.aas.instanceRoot}`, then a subdirectory with the server instance name will be created under the directory specified, and the log files created under it, as illustrated in the example below:

Specified directory: `C:\logs`

Server instance name: `IJServer001-I1`

Log file directory: `C:\logs\IJServer001-I1`

If the specified value does not start with `${com.sun.aas.instanceRoot}`, the directory to which log files are output will not be deleted when the IJServer cluster and the server instances are deleted. Delete the directory manually.

- Interstage Java EE Admin Console:
 - Logs output by the IJServer cluster/Interstage Java EE DAS service:
[Settings] > [<cluster name>-config] or [server-config] > [Logger Settings]
 - Logs output by the Interstage Java EE Node Agent service:
[Node Agent] > [ijna] > [Logger Settings] tab
- `asadmin` command set subcommand:
 - Logs output by the IJServer cluster/Interstage Java EE DAS service:
"Log output directory" in the definition Items of the `configs.config.log-service`
 - Logs output by the Interstage Java EE Node Agent service:
"Log output directory" in the definition Items of the `node-agents.node-agent.log-service`

For details, refer to the Interstage Java EE Admin Console Help and "[10.1 asadmin](#)".

Rotation of the Log File

The log file can be rotated. For details, refer to "[4.22.6 Rotation of the Log File](#)".

Log File Download

The log file of server logs/java VM logs/HTTP access logs can be downloaded from the Interstage Java EE Admin Console.

- Logs output by the IJServer cluster/Interstage Java EE DAS service
[cluster] > [<cluster name>] or [Stand-Alone instance] > [Log download] tab
- Logs output by the Interstage Java EE Node Agent service
[Node Agent] > [ijna] > [Log download] tab

Event Log/system Log

Part of the command processing and Interstage Java EE Node Agent service message is output to the event log or system log.

The event log/system log specs follow the output rules for each OS.

Client Logs

For Application Client Containers

If a Java EE application client is operated in an application client container, the messages output by the application client container will be output to the console.

In this case, messages are output in the following format.

```
appclient: LOG_LEVEL: <message number>:<message>: ThreadID=<thread ID>,ThreadName=<thread name>
<stack trace> (if there is exception information)
```

LOG_LEVEL

- ERROR
- WARNING
- INFO

For Stand-alone Clients

When a Java SE stand-alone application is operated on a stand-alone client, logs are output using the java.util.logging.LogManager Java class, and so the output directory and output format for logs are determined by loading the initial settings from the properties file "lib/logging.properties" in the JRE directory.

By default, logs are output in the following format.

```
<time> <log output class name> <log output method name>
LOG_LEVEL: <message>
<stack trace> (if there is exception information)
```

LOG_LEVEL

- ERROR
- WARNING
- INFO

4.22.1 Server Log

File Name

server.log

Output Contents

IJServer cluster

Standard output for applications deployed to the IJServer cluster, standard error output, and information output by each Java EE component provided in Interstage.

Interstage Java EE DAS service

Information about Java EE-related operations, such as the creation of IJServer clusters and the deployment of applications.

Standard output for applications deployed to the Interstage Java EE DAS service, standard error output, and information output by each Java EE component provided in Interstage are all output.

Interstage Java EE Node Agent services

Information about Java EE-related operations, such as the creation and startup of server instances, is recorded.

Specs

- The log file is created when the process starts up. If a file with the same name exists, this is also output.
- If there are no write permissions, an error message is output to the event log/system log and fails to start (*1).
- Instead of the character string such as "<",">", a sanitized character string may be output.

Examples of sanitized character strings:

<	<
>	>
&	&
"	"

*1 [Solaris32/64](#) [Linux32/64](#)

For details on the method used by a general user to execute this, refer to "[2.1.7 Customizing a Service Operator User](#)".

Output Format

```
[dd/mm/yyyy hh:mm:ss.ms TZD] ISJEE: LOG_LEVEL: message number: message: ThreadID=Thread ID,ThreadName=Thread name
```

LOG_LEVEL:

- ERROR
- WARNING
- INFO

Example of the output

```
[08/08/2007 12:30:25.210 +0900] ISJEE: INFO: ISJEE_CORE0001: IJServer is running... : ThreadID=10,ThreadName=main  
[27/09/2007 15:16:15.578 +0900] ISJEE: ERROR: ISJEE_UTIL11500: param=web: ThreadID=10,ThreadName=main
```

4.22.2 Java VM Log

File Name

jvm.log

Output Contents

IJServer cluster

Information output by the Java VM, such as thread dumps and status information when the Java VM is exited.

Specs

- The log file is created when the process starts up. If a file with the same name exists, this is also output.
- If there are no write privileges when the IJServer cluster is executed, an error message is output to the event log/system log and the IJServer cluster fails to start (*1).

*1 For details on the method used by a general user to execute the IJServer cluster, refer to "[2.1.7 Customizing a Service Operator User](#)".

- The Java VM log only supports IJServer clusters . Interstage Java EE DAS services and Interstage Java EE Node Agent services are not supported.

Status Information for when the Java VM Shuts Down

In IJServer clusters, when the Java VM process shuts down because of a System.exit() call, a stack trace is output to the Java VM log to notify the status information for when the Java VM shuts down.

This information is also output when the IIServer cluster shuts down normally, but in this case there is no need to take action.

An example of the output for when the IIServer cluster shuts down normally is shown below.

```
"RAS Control Thread" prio=10 tid=0x00164670 nid=0x6 runnable
Thread dump at JVM_Halt(status code=0):
"RMI TCP Connection(60)-127.0.0.1" daemon prio=10 tid=0x01bedb80 nid=0xd4 runnable
[0xbc77e000..0xbc77fb70]
  at java.lang.Shutdown.halt0(Native Method)
  at java.lang.Shutdown.halt(Shutdown.java:145)
  - locked <0xd8a00860> (a java.lang.Shutdown$Lock)
  at java.lang.Shutdown.exit(Shutdown.java:219)
  - locked <0xccc19798> (a java.lang.Class)
  at java.lang.Runtime.exit(Runtime.java:90)
  at java.lang.System.exit(System.java:869)
  at com.sun.enterprise.server.J2EESEServer.shutdown(J2EESEServer.java:471)
  at com.sun.enterprise.server.Shutdown.startShutdown(Shutdown.java:94)
  at
com.sun.enterprise.admin.event.AdminEventMulticaster.invokeShutdownEventListener(AdminEventMulticast
er.java:1501)
  at
com.sun.enterprise.admin.event.AdminEventMulticaster.handleShutdownEvent(AdminEventMulticaster.java:
1490)
  at com.sun.enterprise.admin.event.AdminEventMulticaster.processEvent(AdminEventMulticaster.java:
480)
  at
com.sun.enterprise.admin.event.AdminEventMulticaster.multicastEvent(AdminEventMulticaster.java:176)
  at
com.sun.enterprise.admin.server.core.channel.AdminChannelServer.sendNotification(AdminChannelServer.
java:121)
  at sun.reflect.NativeMethodAccessorImpl.invoke0(Native Method)
  at sun.reflect.NativeMethodAccessorImpl.invoke(NativeMethodAccessorImpl.java:39)
  at sun.reflect.DelegatingMethodAccessorImpl.invoke(DelegatingMethodAccessorImpl.java:25)
  at java.lang.reflect.Method.invoke(Method.java:585)
  at sun.rmi.server.UnicastServerRef.dispatch(UnicastServerRef.java:294)
  at sun.rmi.transport.Transport$1.run(Transport.java:153)
  at java.security.AccessController.doPrivileged(Native Method)
  at sun.rmi.transport.Transport.serviceCall(Transport.java:149)
  at sun.rmi.transport.tcp.TCPTransport.handleMessages(TCPTransport.java:466)
  at sun.rmi.transport.tcp.TCPTransport$ConnectionHandler.run(TCPTransport.java:707)
  at java.lang.Thread.run(Thread.java:595)

#### JavaVM terminated: Java HotSpot(TM) Server VM (1.5.0_FUJITSU_MODIFIED-B12 mixed mode),
[pid=20392] TimeMillis=1208340430797 Time=Wed Apr 16 19:07:10 2008
```

For details on the status information for when the Java VM shuts down normally, refer to the following manual.

- "Status information message output functionality for when the Java VM shuts down normally" in the "Tuning Guide"

4.22.3 HTTP Access Log

File Name

server_access_log

Output Contents

Communication information is output for the HTTP service.

Specs

- When the settings have been configured to output HTTP access logs, the HTTP access log file is created. For information on the setting method, refer to "[Setting Method](#)".

- The HTTP access log folder is as follows:

Windows32/64

[Log directory]\http

Solaris32/64 **Linux32/64**

[Log directory]/http

For details on the log directory, refer to "[7.2.1 Logger Definition Items](#)", entry "Log output directory".

- If a file with the same name already exists, the new content is appended to this file.
- The value output to the request line is the value submitted from the client. If the request URL contains characters that are encoded as %, the value sent from the client will be output directly without being decoded.

```
"10.34.200.237" "-" "userA" "22/Aug/2007:19:19:15 +0900" "GET /web/%E3%83%9E%E3%83%AB
%E3%83%81%E3%83%90%E3%82%A4%E3%83%88 HTTP/1.1" "200" "1635" "10.34.200.237:28090"
"6LH3CP1HC4OJED1LC5J64C1P6GOJCCR36GSM8PB2C4R318EHMQIIO08000400000" "15" "ThreadID=174"
"ThreadName=httpWorkerThread-28090-5" "10.34.200.237"
```

- If there are no write privileges, a WARNING message is output to the event log/system log (*1). In this case, the HTTP access log is not output.

*1 **Solaris32/64** **Linux32/64**

This is the behavior when a general user executes the IJServer cluster.

For details on the method used by a general user to execute the IJServer cluster, refer to "[2.1.7 Customizing a Service Operator User](#)".

Setting Method

The following setting items for HTTP access logs can be changed using the Interstage Java EE Admin Console or the asadmin command.

- Access logs
Specify whether to enable output of HTTP access logs.
- Format
Specify the items to be output to the HTTP access log.

For other setting items, refer to "[7.8.3 HTTP Service Definition Items](#)".

- Interstage Java EE Admin Console
[Access Logging] and [Format] in the [Log] tab displayed by selecting [Settings] > [<cluster name>-config] or [server-config] > [HTTP Service] > [Log]
- The set subcommand of the asadmin command
The "access log" and "format" items in the definition items of configs.config.http-service

For details, refer to the Interstage Java EE Console Help, or "[10.1 asadmin](#)".

Output Format

The output format for HTTP access logs can be customized. For information on the setting method, refer to "[Setting Method](#)".

- Use lowercase to specify the item name, and enclose it in percentage signs ("%"). However, the value specified for "any" in "%cookies.any%" is case-sensitive, so specify a value defined in accordance with the RFC2616 standard.
- If multiple items are specified, use blank spaces to separate each item. The maximum number of characters that can be entered is 512 bytes.
- Default value for the output format:

```
%client.name% %client.id% %auth-user-name% %datetime% %request% %status% %response.length%
%headers.host% %cookies.JSESSIONID% %time-taken% %thread.id% %thread.name% %webserver.name%
```

- If only blank spaces are specified in this format, nothing will be output to the log.
- If there is no value to output, or if an item name that has not been registered is specified, "-" will be output.
- If multiple items have been defined, they will be separated by semicolons (";") when they are output.

For details on the setting items, refer to "7.8.3 HTTP Service Definition Items".

Note

- If restorations have been performed from V9.x, HTTP access logs will be output using the format in which they were output in V9.x.
- If HTTP access log output is enabled, performance will be affected. The extent of the impact will depend on factors such as the application, environment, operation, number of concurrent processes, and load.

For details on the items that can be specified, refer to the following table.

Request information

Item name	Explanation	Default value
%client.name%	<ul style="list-style-type: none"> - For operations where communications pass through a web server Outputs the IP address or host name of the client or proxy server. - For operations where communications do not pass through a web server Outputs the IP address of the client or proxy server. 	Yes
%client.id%	Outputs the user information returned from the client. However, "-" will always be output.	Yes
%auth-user-name%	<ul style="list-style-type: none"> - For operations where communications pass through a web server Displays the user name authenticated by the web server. - For operations where communications do not pass through a web server Displays the user name authenticated by the web container. <p>Note: If a user name has not been assigned to the request, "-" will be displayed.</p>	Yes
%datetime%	Outputs the date and time the log was output.	Yes
%request%	Outputs the content of the request line.	Yes
%status%	Outputs the status code	Yes
%response.length%	Outputs the length of the response data. The units are bytes.	Yes
%headers.host%	Outputs the content of the HOST header.	Yes
%cookies.JSESSIONID%	Outputs the session ID.	Yes
%time-taken%	<p>Outputs the time taken (in milliseconds) from when request processing started until web application processing finished.</p> <p>The following time is also included.</p> <ul style="list-style-type: none"> - Compiling the JSP the first time it is accessed, loading classes, and servlet initialization processing. <p>The following time is not included.</p> <ul style="list-style-type: none"> - The time the request was stored in the HTTP connection queue 	Yes

Item name	Explanation	Default value
	- The time taken for the web container to finish sending the data in the response buffer	
%thread.id%	Outputs the thread ID.	Yes
%thread.name%	Outputs the thread name.	Yes
%webservice.name%	- For operations where communications pass through a web server Displays the IP address of the web server. - For operations where communications do not pass through a web server Outputs the IP address of the client or proxy server.	Yes
%cookies.any%	Outputs the content of the Cookie header. For "any," specify the name of the cookie (as defined in RFC2616) to be output, distinguishing upper- and lower-case letters.	
%headers.any%	Outputs the value of the request HTTP header. For "any", specify any valid value for the request HTTP header as defined in RFC2616, using lower-case letters.	
%headers.referer%	Outputs the content of the Referer header.	
%headers.user-agent%	Outputs the content of the User-agent header.	
%response.headers.any%	Outputs the value of the response HTTP header. For "any", specify any valid value for the response HTTP header as defined in RFC2616, using lower-case letters.	
%response.headers.set-cookie%	Outputs the content of the Set-Cookie header in a response message.	
%http-method%	Outputs the HTTP method.	
%http-uri%	Outputs the URI.	
%http-version%	Outputs the protocol version.	
%query-str%	Outputs the query string.	

Example of the Output

The values specified in the output format are output separated by blank spaces.

```
"10.34.200.237" "-" "userA" "22/Aug/2007:19:19:15 +0900" "POST /web/ HTTP/1.1" "200" "1635" "10.34.200.237:28090"
"6LH3CP1HC4OJED1LC5J64C1P6GOJCCR36GSM8PB2C4R318EHMQII08000400000" "15" "ThreadID=174"
"ThreadName=httpWorkerThread-28090-5" "10.34.200.237"
```

4.22.4 IIOP Access Log

File Name

iiop_access.log

Output Contents

The content of the IIOP communications is output to this log.

Specs

- Three output modes can be selected for IIOP access logs: ACCESS, TRACE and NONE. The output content of logs can be switched according to the mode selected, as indicated below. For information on how to set the output mode, refer to "Setting the Output Mode for Access Logs".

ACCESS mode

On clients, time-stamped logs are output for requests that have been sent to the server. On the server, time-stamped logs are output for responses that have been sent to clients.

On clients and on the server, a one-line log is output for each communication.

TRACE mode

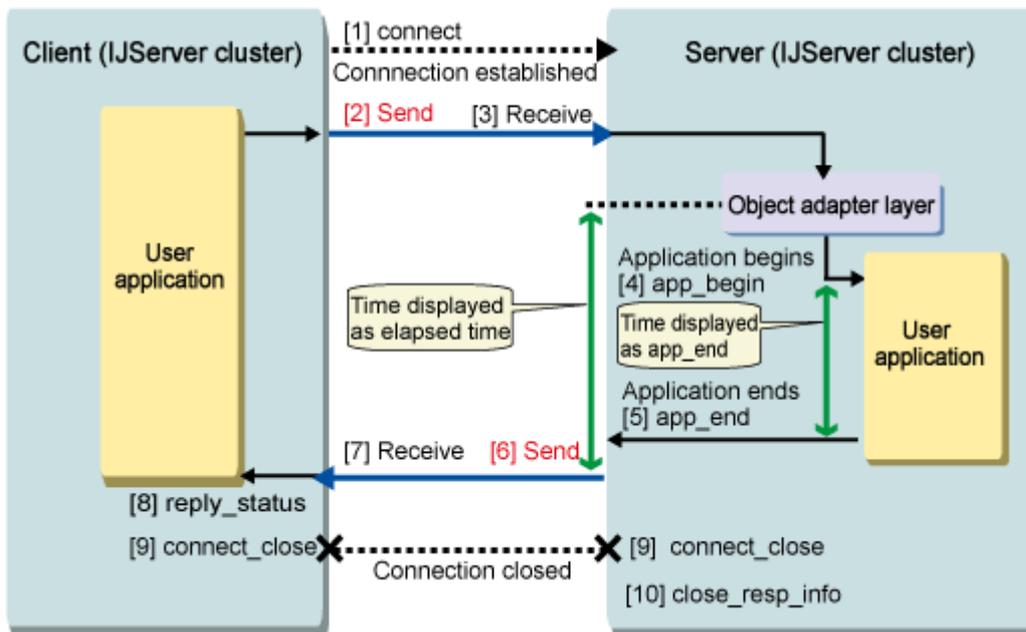
The following information is output to the log.

- Establishing and closing connections
- Sending and receiving requests
- Sending and receiving responses
- Sending and receiving fragments
- Sending and receiving messages other than requests or responses
- Starting and closing the server application

NONE mode

The content of IIOP communications is not output to access logs.

For IIOP access logs, information about IIOP communications is categorized into the events shown in the following figure, and time-stamped logs are output when events occur.



For "Send" [2], "Receive" [3], "Send" [6] and "Receive" [7] in the figure, information about the following is output to access logs.

- Request messages ("Request")
- Response messages ("Reply")
- The transmission and reception of fragmented messages ("Fragment")
- The transmission and reception of messages other than request messages and response messages ("Other")

The following table shows the output relationship between the ACCESS and TRACE modes and message types that are output for transmissions (OUT) and receptions (IN).

Sequence number	Transmission/reception (OUT/IN)	Message type	ACCESS mode	TRACE mode
[2]	OUT	Request	Yes	Yes
		Fragment	No	Yes
		Other	No	Yes
[3]	IN	Request	No	Yes
		Fragment	No	Yes
		Other	No	Yes
[6]	OUT	Reply	Yes	Yes
		Fragment	No	Yes
		Other	No	Yes
[7]	IN	Reply	No	Yes
		Fragment	No	Yes
		Other	No	Yes

The transmission or reception of messages other than request messages and response messages("Other") corresponds to one of the following GIOP message types stipulated by the CORBA rules.

Message	Message type	Meaning
Other	CancelRequest	Cancels a request.
	LocateRequest	Makes an inquiry regarding a request.
	LocateReply	A response to a LocateRequest.
	CloseConnection	Makes a request to close a connection.
	MessageError	Notifies that there is a problem with a transmission or reception.

For "connect" [1], "connect_close" [9] and "close_resp_info" [10] in the figure, information about the connection is output to access logs.

For "app_begin" [4] and "app_end" [5], information about application calls is output to access logs.

For "reply status" [8], information about the status of messages received from the server is output to access logs.

The following table shows the relationship between the ACCESS and TRACE modes and the information that is output.

Sequence number	Event name	Meaning	ACCESS mode	TRACE mode
[1]	connect	A connection to the server will be established.	No	Yes
[4]	app_begin	Calling the application will start.	No	Yes
[5]	app_end	Calling the application will finish.	No	Yes
[8]	reply_status	This is the status of the message received from the server.	No	Yes
[9]	connect_close	The connection will be closed.	No	Yes

Sequence number	Event name	Meaning	ACCESS mode	TRACE mode
[10]	close_resp_info	A response will be discarded due to the connection being closed or blocked.	No	Yes

- An IIOP access log file is created when the first IIOP communication is implemented. If a file with the same name already exists, the new content is appended to this file.
- The IIOP access log output destination is as follows:

Windows32/64

[log output dir]\iiop

Solaris32/64 Linux32/64

[log output dir]\iiop

For information on the log output directory, refer to "Log output directory" under "[7.2.1 Logger Definition Items](#)".

- If an error has occurred during the processing to output an IIOP access log (such as a lack of read or write permission), an error message will be output to the server log. After an error has occurred, IIOP access logs will no longer be output.



Note

- Access logs are not output for calls within the IJServer cluster process because IIOP communications are not used, just as IIOP communications are not used when making a local call to an EJB application that has been deployed to the IJServer cluster.
- On the client machine, IIOP communications information for Java EE application clients is not output to access logs.

Output Format

```
"[<date> <time>]" "<thread ID(thread name)>" "<message>"
```

<date>

```
Day(two decimal digits)/Month(two decimal digits)/Year(four decimal digits)
```

<time>

```
hour (two decimal digits):minute(two decimal digits):second(two decimal digits).milliseconds(three decimal digits) (time difference with respect to GMT)
```

<thread ID(thread name)>

```
ID(decimal)/name(numbers and letters)
```

<message>

Displays information about the IIOP communication. The message part is output using the format shown below.

Sending and Receiving Messages

```
<transmission/reception>(<role>) <message type> <supplementary information>
```

<transmission/reception>

IN: Indicates a "reception" communication.

OUT: Indicates a "transmission" communication.

<role>

CL: Indicates that the machine is running as a client function.

SV: Indicates that the machine is running as a server function.

<message type>

One of the following will be output:

- Request
- Reply
- Fragment
- Other

<supplementary information>

Supplementary information varies depending on the message type. For details, refer to "[Supplementary Information for each Message Type](#)".

Other than Sending and Receiving Messages

```
<event name> <supplementary information>
```

<event name>

One of the following will be output:

- connect
- connect_close
- close_resp_info
- app_begin
- app_end
- reply_status

<supplementary information>

Supplementary information varies depending on the event name. For details, refer to "[Supplementary Information for each Event Name](#)".

Supplementary Information for each Message Type

Request

If the <transmission/reception> for the message format is "IN"

```
(request_id=<request ID>, client=<client information>, server=<server information>,  
more=<fragment information>)
```

If the <transmission/reception> for the message format is "OUT"

```
(request_id=<request ID>, client=<client information>, server=<server information>,  
more=<fragment information>, intf_id=<interface repository ID>, operation=<method name>,  
oneway=<oneway call>)
```

request ID

This is the request ID used when the Request message was sent.

If the request ID cannot be displayed, "-" will be displayed.

client information

This is the IP address and port number for the request source of the Request message.

server information

This is the IP address and port number for the request destination of the Request message.

fragment information

false: Indicates that the Request message has not been fragmented.

true: Indicates that the Request message has been fragmented, and that there are subsequent Fragment messages.

interface repository ID

This is the information for identifying the application.

This corresponds to an interface repository ID stipulated by CORBA rules.

method name

This is the method name of the server application that was called by the client application.

oneway call

This indicates whether the Request is a oneway method that does not expect a response from the server.

true: Indicates that the Request is a oneway method.

false: Indicates that the Request is not a oneway method.

Reply

If the <transmission/reception> for the message format is "IN"

```
(request_id=<request ID>, client=<client information>, server=<server information>,  
more=<fragment information>)
```

If the <transmission/reception> for the message format is "OUT"

```
<reply status> <elapsed time> (request_id=<request ID>, client=<client information>,  
server=<server information>, more=<fragment information>, intf_id=<interface repository ID>,  
operation=<method name>, [excep_id=<repository ID for the exception>], [minor=<minor code for  
the SYSTEM exception>])
```

reply status

One of the following will be displayed.

Reply status	Meaning
NO_EXCEPTION	Indicates that the method has returned normally.
USER_EXCEPTION	Indicates that a user exception has occurred.
SYSTEM_EXCEPTION	Indicates that a system exception has occurred.
LOCATION_FORWARD	Returns information about an appropriate request destination.
LOCATION_FORWARD_PERM	Returns information about a desirable request destination.
NEEDS_ADDRESSING_MODE	Notifies a change in the request method.

elapsed time

This item displays the time that elapses from when request processing actually starts after the server receives the request until a response is returned to the client. If the message returned from the server to the client is split into multiple fragments, this item indicates the time that elapses until the first of the split messages is returned. The units are milliseconds.

request ID

This item indicates the request ID for the Request message corresponding to the Reply message.

If the request ID cannot be displayed, "-" will be displayed.

client information

This is the IP address and port number for the response destination of the Reply message.

server information

This is the IP address and port number for the response source of the Reply message.

fragment information

false: Indicates that the Reply message has not been fragmented.

true: Indicates that the Reply message has been fragmented, and that there are subsequent Fragment messages.

interface repository ID

This is the information for identifying the application.

This corresponds to an interface repository ID stipulated by CORBA rules.

If the interface repository ID cannot be displayed, "-" will be displayed.

method name

This is the method name of the server application that was called by the client application.

repository ID for the exception

If the reply status is either USER_EXCEPTION or SYSTEM_EXCEPTION, this item indicates the repository ID for the exception. This item is not displayed for other reply statuses.

minor code for the SYSTEM exception

If the reply status is SYSTEM_EXCEPTION, this item displays the minor code for the exception in decimal notation. This item is not displayed for other reply statuses.

Fragment

```
(request_id=<request ID>, client=<client information>, server=<server information>,  
more=<fragment information>)
```

request ID

This is the request ID used when the Fragment message was requested.

client information

This is the IP address and port number for the request source or response destination of the Fragment message.

server information

This is the IP address and port number for the request destination or response source of the Fragment message.

fragment information

false: Indicates that there are no subsequent Fragment messages.

true: Indicates that there are subsequent Fragment messages.

Other

```
<message type> ([reply_status=<reply status>], [request_id=<request ID>], client=<client  
information>, server=<server information>, [more=<fragment information>], [except_id=<repository  
ID for the exception>], [minor=<minor code for the SYSTEM exception>])
```

message type

One of the following will be displayed.

- CancelRequest
- LocateRequest
- LocateReply
- CloseConnection
- MessageError

reply status (*1)

The following information is output only when the message type is "LocateReply".

Reply status	Meaning
UNKNOWN_OBJECT	Indicates that the request is invalid.
OBJECT_HERE	Indicates that the request is appropriate.
OBJECT_FORWARD	Returns information about an appropriate request destination.
OBJECT_FORWARD_PERM	Returns information about a desirable request destination.
LOC_SYSTEM_EXCEPTION	Indicates that a system exception has occurred.
LOC_NEEDS_ADDRESSING_MODE	Notifies a change in the request method.

request ID (*1)

This is the request ID used when the message was requested.

If the request ID cannot be displayed, "-" will be displayed.

client information

This is the IP address and port number for the request source or response destination of the message.

server information

This is the IP address and port number for the request destination or response source of the message.

fragment information (*1)

false: Indicates that there are no subsequent Fragment messages.

true: Indicates that there are subsequent Fragment messages.

repository ID for the exception (*1)

This item displays the repository ID for the exception only when the message type is LocateReply and the reply status is LOC_SYSTEM_EXCEPTION.

minor code for the SYSTEM exception (*1)

This item displays the minor code for the exception in decimal notation only when the message type is LocateReply and the reply status is LOC_SYSTEM_EXCEPTION.

*1 Nothing is output to access logs if there is no information to display.

Supplementary Information for each Event Name

connect

```
(client=<client information>, server=<server information>)
```

client information

This is the IP address and port number for the connection source.

server information

This is the IP address and port number for the connection destination.

connect_close

```
(client=<client information>, server=<server information>)
```

client information

This is the IP address and port number for the connection source.

server information

This is the IP address and port number for the connection destination.

close_resp_info

```
(request_id=<request ID>, client=<client information>, server=<server information>,  
[intf_id=<interface repository ID>], [operation=<method name>])
```

request ID

This is the request ID of the discarded message.

client information

This is the IP address and port number for the connection source.

server information

This is the IP address and port number for the connection destination.

interface repository ID (*1)

This is the information for identifying the application.

This corresponds to an interface repository ID stipulated by CORBA rules.

method name (*1)

This is the method name of the server application that was called by the client application.

*1 Nothing is output to access logs if there is no information to display.

app_begin

```
(request_id=<request ID>, client=<client information>, server=<server information>,  
intf_id=<interface repository ID>, operation=<method name>)
```

request ID

This is the request ID of the Request message.

client information

This is the IP address and port number for the connection source.

server information

This is the IP address and port number for the connection destination.

interface repository ID

This is the information for identifying the application.

This corresponds to an interface repository ID stipulated by CORBA rules.

method name

This is the method name of the server application that was called by the client application.

app_end

```
<elapsed time> (request_id=<request ID>, client=<client information>, server=<server  
information>, intf_id=<interface repository ID>, operation=<method name>)
```

elapsed time

This is the application processing time. The units are milliseconds.

request ID

This is the request ID of the Request message.

client information

This is the IP address and port number for the connection source.

server information

This is the IP address and port number for the connection destination.

interface repository ID

This is the information for identifying the application.

This corresponds to an interface repository ID stipulated by the CORBA rules.

method name

This is the method name of the server application that was called by the client application.

reply_status

```
<message type> <reply status> (request_id=<request ID>, client=<client information>,
server=<server information>, [operation=<method name>], [except_id=<repository ID for the
exception>], [minor=<minor code for the SYSTEM exception>])
```

message type

Either "Reply" or "LocateReply" is displayed.

reply status

One of the following statuses is displayed according to the message type.

Message type	Status
Reply	NO_EXCEPTION
	USER_EXCEPTION
	SYSTEM_EXCEPTION
	LOCATION_FORWARD
	LOCATION_FORWARD_PERM
	NEEDS_ADDRESSING_MODE
LocateReply	UNKNOWN_OBJECT
	OBJECT_HERE
	OBJECT_FORWARD
	OBJECT_FORWARD_PERM
	LOC_SYSTEM_EXCEPTION
	LOC_NEEDS_ADDRESSING_MODE

request ID

This is the request ID of the Request or LocateRequest message.

client information

This is the IP address and port number for the receiver source of the message.

server information

This is the IP address and port number for the sender source of the message.

method name (*1)

This is the method name of the server application that was called by the client application.

repository ID for the exception (*1)

If the reply status is USER_EXCEPTION, SYSTEM_EXCEPTION or LOC_SYSTEM_EXCEPTION, this item indicates the repository ID of the exception. This item is not displayed for other reply statuses.

minor code for the SYSTEM exception (*1)

If the reply status is SYSTEM_EXCEPTION or LOC_SYSTEM_EXCEPTION, this item displays the minor code for the exception in decimal notation. This item is not displayed for other reply statuses.

*1 Nothing is output to access logs if there is no information to display.

Setting the Output Mode for Access Logs

The output mode for IIOP access logs is set as a property for the ORB definitions of the IIOP service in the IIOP service definition items for the IJServer cluster. Use the Interstage Java EE Admin Console or the asadmin command to set this item.

For details on the ORB definitions for the IIOP service, refer to "[7.8.4 IIOP Service Definition Items](#)".

Property name	Explanation	Settings	Default value
ISJEELogIiopAccessMode	Sets the output mode for IIOP access logs.	<ul style="list-style-type: none"> - ACCESS mode access - TRACE mode trace - NONE mode none 	access

Note

- If this property is not set, the access log output mode will run according to the default value.
- To enable the setting for the property, restart the IJServer cluster after setting the property.

Example

To set this property using the asadmin command, specify settings as follows:

```
asadmin set IJServer001.iiop-service.orb.property.ISJEELogIiopAccessMode=trace
```

Output Example

When the client has requested a Request message

```
"[03/03/2011 16:54:54.311 +0900]" "16(p: thread-pool-1; w: 3)" "OUT(CL) Request (request_id=8, client=127.0.0.1:2376, server=127.0.0.1:23701, more=false, intf_id=RMI:test._TargetRemote_Remote:0000000000000000, operation=func, oneway=false)"
```

When the server has responded with a Reply message

```
"[03/03/2011 16:54:54.311 +0900]" "19(p: thread-pool-1; w: 8)" "OUT(SV) Reply NO_EXCEPTION 1062 (request_id=8, client=127.0.0.1:2376, server=127.0.0.1:23701, more=false, intf_id=RMI:test._TargetRemote_Remote:0000000000000000, operation=func)"
```

4.22.5 HTTP Trace Logs

File Name

trace.log

Output Contents

Information about the status of the processing in the web container for requests from clients is output to this trace log.

Specs

- When the settings have been configured to output HTTP trace logs, the HTTP trace log file is created. If a file with the same name already exists, the new content is appended to this file.
- The HTTP trace log output destination is as follows:

 Windows32/64

[log output dir]\http

[log output dir]\http

For information on the log output directory, refer to "Log output directory" under "7.2.1 Logger Definition Items".

- If the processing that writes information to this log or rotates this log fails, an error message will be output to the server log.
- The HTTP trace log is set up using either of the following methods.
 - Interstage Java EE Admin Console
 - [Settings] > [<cluster name>-config] or [server-config] > [HTTP Service] > [Log] tab
 - The set subcommand of the asadmin command
 - "Trace log" in the configs.config.http-service definition item

For details, refer to the Interstage Java EE Console Help, or "10.1 asadmin".

For details on the setting items, refer to "7.8.3 HTTP Service Definition Items".

Output Format

The format of the logs that are output as HTTP trace logs is as indicated below.

Output format:

```
"date/time" "thread ID(thread name)" "event" "detailed information"
```

date/time

This is the date and time the HTTP trace log was output.

thread ID

This is the thread ID of the processing thread.

thread name

This is the thread name of the processing thread.

event

This is the event name indicating the output timing.

detailed information

The following table shows the output content for each output timing.

Output timing	Event	Detailed information
When a TCP connection is established	conn	The IP address and port number of the client (*1)
When a TCP connection is closed	disc	The IP address and port number of the client (*1)
When an HTTP request is received	recv	The request line
When an HTTP response is sent	send	The status code
When the web container is called	call	
When control returns from the web container	rtn	
When a request is inserted into the connection queue	qin	The IP address and port number of the client (*1)
When a request is retrieved from the connection queue	qout	The IP address and port number of the client (*1)
When keep-alive waiting mode starts	k-wt	The IP address and port number of the client (*1)

*1 Here "client" refers to a web browser, load balancer, proxy server, web server connector, and so on.

Note

- If HTTP trace log output is enabled, performance will be affected. The extent of the impact will depend on factors such as the application, environment, operation, number of concurrent processes, and load.
- In future, the output timings and output content may change as a result of functions being added or other improvements. For this reason, try to avoid operations that are dependant on the output content.

Output Example

An output example is shown below.

```
"18/May/2011:14:13:11.750" "43(SelectorThread-28090)" "conn" "/10.123.113.6:2251"
"18/May/2011:14:13:14.531" "43(SelectorThread-28090)" "qin" "/10.123.113.6:2251"
"18/May/2011:14:13:14.531" "58(httpWorkerThread-28090-14)" "qout" "/10.123.113.6:2251"
"18/May/2011:14:13:14.671" "58(httpWorkerThread-28090-14)" "recv" "GET /OptionLogTest2/TestServlet
HTTP/1.1"
"18/May/2011:14:13:14.671" "58(httpWorkerThread-28090-14)" "call"
"18/May/2011:14:13:14.671" "58(httpWorkerThread-28090-14)" "send" "200"
"18/May/2011:14:13:14.671" "58(httpWorkerThread-28090-14)" "rtn"
"18/May/2011:14:13:14.671" "58(httpWorkerThread-28090-14)" "k-wt" "/10.123.113.6:2251"
"18/May/2011:14:13:29.671" "43(SelectorThread-28090)" "disc" "/10.123.113.6:2251"
```

4.22.6 Rotation of the Log File

Server Log and Java VM Log

The log file can be rotation. The rotation condition is specified in [Log Size] or [Time]. The default is [Log Size]. Interstage Java EE DAS service Java VM logs cannot be rotated, however.

When the condition that specified is satisfied, the time at which the rotation was executed is saved in the name that is added, as shown below.

File name after rotation

```
File name_YYYY_MM_DD-hh_mm_ss
```

An information message is output to the event log/system log at the time of rotation processing.

Additionally, an error message is output to the event log/system log when the rotation fails.

The following items can be set for rotation:

Rollover according to Log Size

The maximum log file size is specified in a range from 1 to 512 megabytes. The default value is 1 megabyte.

The log file is rotation when the specified size is reached.

Rollover according to Time

The time at which the rotation is started is specified in a range from 0 to 23. The default time is 0.

The log file is rotation at the time that is specified.

Number of Generations

The number of generations that are archived for the log file that was rotation is selected from 1 to 9.

When the number of generations that were archived exceeds the number of generations that were specified, the oldest generation log file is deleted. The default value is 1 generation.

The above settings items can be changed using the Interstage Java EE Admin Console or the asadmin command:

- Interstage Java EE Admin Console:
 - IJServer clusters/server logs output by the Interstage Java EE DAS service/Java VM logs:
 - [Settings] > [<cluster name>-config] or [server-config] > [Logger Settings]
 - Logs output by the Interstage Java EE Node Agent service:
 - [Node Agent] > [ijna] > [Logger Settings] tab
- asadmin command set subcommand:
 - IJServer clusters/server logs output by the Interstage Java EE DAS service/Java VM logs
 - "Definition items of the configs.config.log-service" - "Rotation type", "Log size", "Log collection time", "Number of generations"
 - Logs output by the Interstage Java EE Node Agent service
 - "Definition items of the node-agents.node-agent.log-service" - "Rotation type", "Log size", "Log collection time", "Number of generations"

For HTTP Access Logs

The log file can be rotated. The rotation conditions can be specified using either "log size" or "time" conditions.

After rotation, the log file will be stored under a name to which the time the rotation was executed has been appended.

```
server_access_log_YYYY_MM_DD-hh_mm_ss
```

A sequence number will be appended to the file name if rotation is executed within one second of the previous rotation.

```
server_access_log_YYYY_MM_DD-hh_mm_ss.<sequence number>
```

The following items can be set for rotation:

- Rollover according to Log Size
 - Specify the maximum size of the log file using a value between 1 and 512 MB. The default value is 1 MB.
 - The log file is rotated when the specified size is reached.
- Rollover according to Time
 - Specify the time to start the rotation using a value between 0 and 23. The default value is 0 (o'clock).
 - Logs are rotated at the specified time.
- Number of Generations
 - Specify a value between 1 and 999 as the number of generations to be stored for the log file that has been rotated.
 - If the number of log files stored exceeds the specified number of generations, the oldest generation of the log file will be deleted. The default value is 5 (generations).

The above settings items can be changed using the Interstage Java EE Admin Console or the asadmin command:

- Interstage Java EE Admin Console:
 - [Settings] > [<cluster name>-config] or [server-config] > [HTTP Service] > [Log] tab
- asadmin command set subcommand:
 - "Rotation type", "Log size", "Logcollection time" and "Number of generations" in "Definition Items of the configs.config.http-service"

For details on the setting items, refer to "7.8.3 HTTP Service Definition Items", or "Definition Items that can be Executed by the asadmin Command" - "Definition Items of the configs" - "Definition Items of the configs.config.http-service".



Note

- If the number of generations is reduced, the number of log files will be reduced to match the specified number of generations when the next rotation takes place.

- In the output directory for HTTP access logs, do not create files with the same naming format as the file name of the rotated file.

For IIOP Access Logs

Log files rotate according to the condition specified for the log size.

After rotation, the log file will be stored under a name to which the time the rotation was executed has been appended.

```
iiop_access.log_YYYY_MM_DD-hh_mm_ss
```

A sequence number will be appended to the file name if rotation is executed within one second of the previous rotation.

```
iiop_access.log_YYYY_MM_DD-hh_mm_ss.<sequence number>
```

The following items can be set for rotation:

Rollover according to Log Size

Specify the maximum size of the log file using a value between 1 and 2000 MB. The default value is 3 MB.

Number of Generations

Specify a value between 1 and 999 as the number of generations to be stored for the log file that has been rotated.

If the number of log files stored exceeds the specified number of generations, the oldest generation of the log file will be deleted. The default value is 2 (generations).

This setting item is set as a property for the ORB definitions of the IIOP service in the IIOP service definition items for the IJServer cluster. Use the Interstage Java EE Admin Console or the `asadmin` command to set this item.

For details on the ORB definitions for the IIOP service, refer to "[7.8.4 IIOP Service Definition Items](#)".

Property name	Explanation	Settings	Default value
ISJEELogIiopAccessRotationsize	Sets the maximum size of the log file.	1 to 2000	3
ISJEELogIiopAccessRotationcount	Sets the maximum number of generations of the log file that can be stored.	1 to 999	2

Note

- If these properties are not set, operations will be performed according to the default value.
- To enable the settings for these properties, restart the IJServer cluster after setting them.
- If there is a problem with the settings, an IOP00110397 message will be output to the server log, and the server instance will fail to start.

Example

To set these properties using the `asadmin` command, specify settings as follows:

```
asadmin set IJServer001.iiop-service.orb.property.ISJEELogIiopAccessRotationsize=10
```

For HTTP Trace Logs

Log files rotate according to the condition specified for the log size.

The following items can be set for rotation:

Rollover according to Log Size

Specify the maximum size of the log file using a value between 1 and 2000 MB. The default value is 10 MB.

The log file is rotated when the specified size is reached. After rotation, the log file will be stored under a name to which the time the rotation was executed has been appended.

```
trace.log_YYYY_MM_DD-hh_mm_ss
```

A sequence number will be appended to the file name if rotation is executed within one second of the previous rotation.

```
trace.log_YYYY_MM_DD-hh_mm_ss.<sequence number>
```

Number of Generations

Specify a value between 1 and 999 as the number of generations to be stored for the log file that has been rotated.

If the number of log files stored exceeds the specified number of generations, the oldest generation of the log file will be deleted. The default value is 10 (generations).

The above settings items can be changed using the Interstage Java EE Admin Console or the asadmin command:

- Interstage Java EE Admin Console:

[Settings] > [<cluster name>-config] or [server-config] > [HTTP Service] > [Log] tab

- asadmin command set subcommand:

"Trace log" and "Log size of trace log" under "[10.19.3.2 Definition Items of the configs.config.http-service](#)"

For details on the setting items, refer to "[7.8.3 HTTP Service Definition Items](#)".



Note

- If the settings for HTTP trace logs have been changed, restart the target IJServer cluster or Interstage Java EE DAS service.
- If the number of generations is reduced, the number of log files will be reduced to match the specified number of generations when the next rotation takes place.
- In the output directory for HTTP trace logs, do not create files with the same naming format as the file name of the rotated file.
- If the configuration of the HTTP trace log was changed using the "set" subcommand of the asadmin command, ensure that no error messages have been output to the server log after restarting the IJServer cluster.

4.23 Control for Dispatching Requests via IIOP Communications

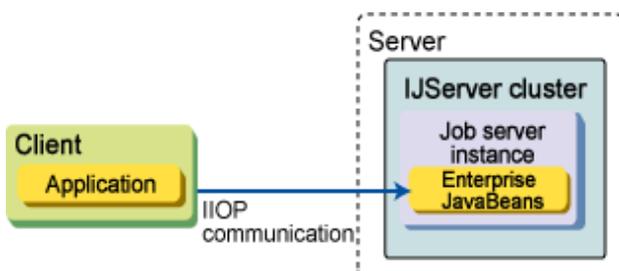
4.23.1 System Design

This section explains the system configuration where servers or server instances are mirrored or distributed.

If IIOP communications are performed to or from an older version of the product, load balancing based on the EJB Dispatcher feature cannot be used. In this case, use the group management service provided by the older product.

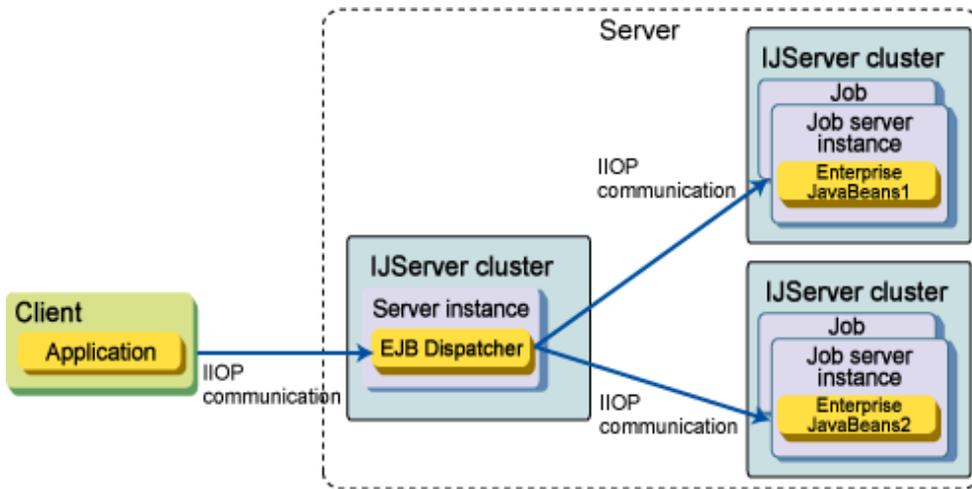
Operating a Single Server Instance

Load balancing is not required if the IJServer cluster where the EJB application is running is operating using a single server instance. Similarly, load balancing is not required if the EJB application is called from an application on the same server instance, because in this case the application is called without using IIOP communications.



Operations where Server Instances are Mirrored or Distributed

If the IJServer cluster where the EJB application is running is operated using multiple server instances, or if the caller is calling multiple IJServer clusters, prepare an IJServer cluster/server instance for the EJB Dispatcher. Design the system so that the caller sends IOP communication requests to the server instance where the EJB Dispatcher is running.



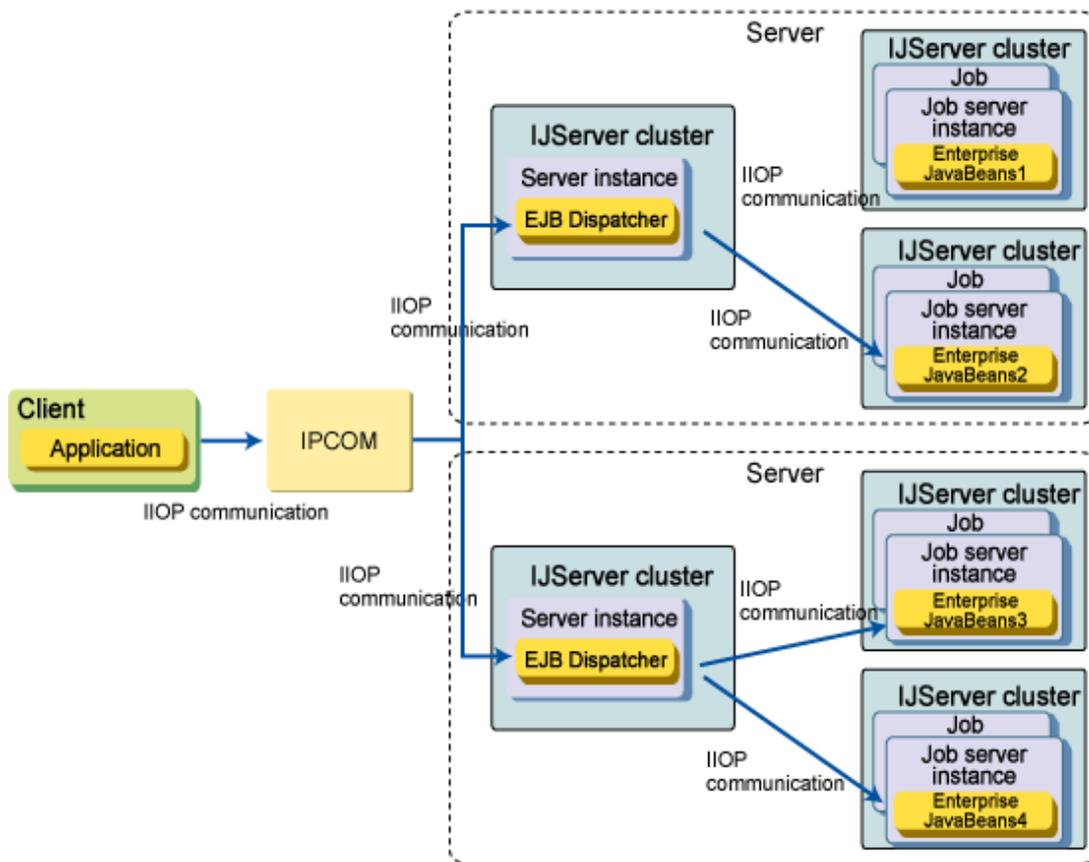
It is also possible to create multiple EJB Dispatchers on a single server. For example, if multiple EJB Dispatchers are prepared according to the level of processing priority, when load concentrates on processing with a low priority level, the impact on processing with a high priority level can be reduced.

Note

When using an EJB Dispatcher, do not run the same Enterprise JavaBean on multiple IJServer clusters to which processing is dispatched. When the EJB Dispatcher attempts to start dispatching processing, if the same Enterprise JavaBean is already running on another IJServer cluster, an EJBD0018 warning message will be output and the IJServer cluster will be removed from the dispatch target for the Enterprise JavaBean where the error occurred.

Operations where Servers are Mirrored

To operate the system by mirroring servers on the assumption that errors might occur with the server where the EJB Dispatcher is running, use IPCOM-based load balancing. Design the system so that the caller sends IOP communication requests to an IPCOM virtual host.



4.23.1.1 Notes on Tuning the EJB Dispatcher Feature

The EJB Dispatcher feature links each server instance via IIOp communications. This means that the following tuning is required even for the server instance where the EJB Dispatcher runs.

- Various tuning settings for the time monitoring function relating to IIOp communications

Set up the time for monitoring the time when the EJB Dispatcher performs IIOp communications with the server instances to which it dispatches processing. For information on the settings that can be tuned, refer to "[2.9 Time Monitoring Functionality that can be Used in the EJB Container](#)".

- Various tuning settings for thread pools

If the EJB Dispatcher implements dispatch work by receiving IIOp communication requests, tune the number of threads that can be used to execute dispatch work simultaneously. For information on the settings that can be tuned, refer to "[7.8.16 Thread Pool Definition Items](#)".

- Tuning the size of the heap area for the Java VM

The size of the heap area for the Java VM must be tuned according to the number of requests to be received and other factors, so that the EJB Dispatcher can perform dispatch work by receiving IIOp communication requests. Tune the size to an appropriate value by referring to "JDK/JRE Tuning" in the Tuning Guide.

4.23.1.2 Types of Enterprise JavaBeans that Can be Used with IPCOM Linkage

The types of Enterprise JavaBeans that can be used with IPCOM-based load balancing vary depending on which load balancing function is used, as indicated below.

When the group management service is used	When the EJB Dispatcher is used
The only type of EJB that can be called is a Stateless Session Bean.	Both Stateless Session Beans and Stateful Session Beans can be called.

Moreover, the timing of when the distribution destination server instance is decided also differs, as indicated below.

When the group management service is used	When the EJB Dispatcher is used
<p>The distribution destination server instance changes every time a business method is executed.</p> <p>Do not use Stateful Session Beans, because processing may be dispatched to a different server instance from the server instance where the session was created.</p>	<p>If Home/Remote interfaces are used, requests will be processed by the server instance to which a request was dispatched the first time the "create" method was executed on the Home interface. To change the server instances that perform the processing, execute the procedure again starting from the "lookup" method.</p> <p>If a business interface is used, requests will be processed by the same server instance after the "lookup" method is executed. To change the server instance that performs the processing, execute the procedure again starting from the "lookup" method.</p> <p>If objects are injected using the @EJB annotation, the distribution destination will be determined when the object is injected and it will not be possible to change which server instance performs the processing, so do not perform object injection using the @EJB annotation.</p>

4.23.2 Load Balancing and Failover Algorithms

4.23.2.1 If a Load Balancing Function is not Used

For the endpoint specified for clients (the host name and port combination), specify the server instance where the Enterprise JavaBean is running. When the JNDI service is accessed (when a JNDI API is executed), the first endpoint specified in the list of endpoints specified for the client will be accessed.

If the request for the first endpoint in the list results in a connection error, the request will then access the second endpoint in the list, and then go on to fail over to other endpoints in the same way if necessary. If the connection destination server is not running, the failover may take some time.

Conditions		Timing
If the Home or Remote interface is used		When the "lookup" method is called on the EJB
If a remote business interface for EJB 3.0 or later is used	If JNDI is used	When the "lookup" method is called on the EJB
	If annotation is used	When an EJB object is injected in an @EJB annotation

When processing is executed on an object reference acquired from the JNDI service at the timing above, a processing request will be sent to the server instance where the JNDI service that was accessed is located.

4.23.2.2 Load Balancing Based on the EJB Dispatcher Feature

For the endpoint specified for clients (the host name and port combination), specify the server instance where the EJB Dispatcher is running. When the JNDI service is accessed (when a JNDI API is executed), the first endpoint specified in the list of endpoints specified for the client will be accessed.

If the request for the first endpoint in the list results in a connection error, the request will then access the second endpoint in the list, and then go on to fail over to other endpoints in the same way if necessary.

If the connection destination server is not running, the failover may take some time.

The EJB Dispatcher dispatches processing to dispatch targets with the following timing. IIOP communications to services other than Enterprise JavaBeans (such as GMS and JNDI services) will not be dispatched.

Conditions	Dispatch timing
If the Home or Remote interface is used	When the "create" method of the Home interface is executed for the first time. After the "create" method has been executed, processing will continue to be dispatched to the server instance to which processing was dispatched

Conditions		Dispatch timing
		by the first "create" method, until the "lookup" method is executed again.
If a remote business interface for EJB 3.0 or later is used	If JNDI is used	When the "lookup" method is called on the EJB"
	If annotation is used	- (Do not use annotation.)

 **Note**

Note: Reason why using annotation is not recommended when a load balancing function is used

If annotation is used with remote business interfaces for EJB 3.0 or later, the dispatch destination will be determined when the EJB object is injected at the @EJB annotation. However, because there is no way of reinjecting an EJB object at the @EJB annotation, there is no way to change the dispatch destination for applications where objects have been injected. For this reason, do not use annotation if a load balancing function is used. If processing is executed on an object reference acquired from the JNDI service at the timing above, a processing request will be sent to the server instance where the JNDI service that was accessed is located.

If a processing request is sent to an object reference that has been acquired at the dispatch timing above, the processing request will be directed to the server instance that was called at the dispatch timing.

To change the server instance that sends processing requests, execute the procedure again starting from the above processing for dispatch timing.

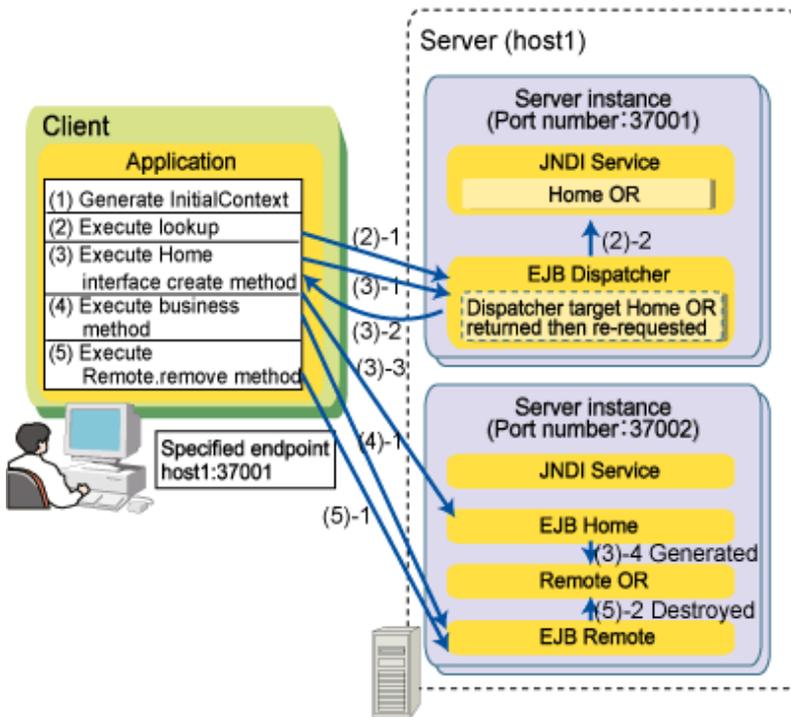
 **Note**

If annotation is used with remote business interfaces for EJB 3.0 or later, there is no way to reinject an EJB object at an @EJB annotation, so do not use annotation if a load balancing function is used.

This section explains the behavior with the EJB 2.1 rules when Home or Remote interface is used. Note that if a business interface with the EJB 3.0 rules is used then Step 3, "Executing the "create" method of the Home interface" is performed internally within Step 2, "Executing the "lookup" method".

Here, "EJB Home" refers to an object with the Home interface of EJB applications, "EJB Remote" refers to an object with the Remote interface of EJB applications, "Home OR" refers to object references for the Home interface of EJB applications, and "Remote OR" refers to object references for the Remote interface of EJB applications.

Objects are the entities that process IOP communication requests on the server, whereas object references are information for identifying objects that have been placed on distributed systems.



For the object references that are returned by the JNDI "lookup" method and the "create" method of the Home interface, information about the host name and IOP listener port number for the server instance that generated or returned the object reference will be set. Requests on these object references will be sent to the host name and IOP listener port number that have been set.

The following section explains how IOP communications work in the various processing situations described above.

(1) Generating an InitialContext

If the EJB Dispatcher feature is used, requests are not sent to the server.

(2) Executing the "lookup" method

The processing performed by the "lookup" method communicates via IOP to the JNDI service on the server and gets an object reference for the Home interface from the JNDI service. This IOP communication processing sends a request to the endpoint (a host name and IOP listener port number pair) specified for the client.

The EJB Dispatcher that receives the request does not perform dispatch processing because the request is not a request for an Enterprise JavaBean (it is a request for the JNDI service), and the JNDI service on the server instance where the EJB Dispatcher is running returns an object reference for the Home interface.

Note

By expanding an Enterprise JavaBean to which processing will be dispatched to the server instance where the EJB Dispatcher is running, an object reference for the Home interface will be registered.

For information on how to expand Enterprise JavaBeans (applications), refer to "4.6.9 Expanding Applications".

(3) Executing the "create" method of the Home interface

For the object reference returned in Step 2 above, information about the server instance where the EJB Dispatcher is running will be set, and so requests to the "create" method of the Home interface will be sent to the server instance where the EJB Dispatcher is running. Because these requests are requests for an Enterprise JavaBean, the EJB Dispatcher that receives the requests replies with a request to resend the request to the object reference for the dispatch target server instance. The caller that receives the resend request automatically resends the request to the dispatch target server instance, and an object reference for the Remote interface is generated on the server instance to which the request was dispatched, and returned to the caller. This means that the host name and IOP listener port number for the dispatch destination server instance are set in the object reference.

Note

The information in the dispatch target object reference that is returned by the first "create" method call overwrites the information for the object reference for the Home interface that was acquired by the "lookup" method. After the first "create" method is executed, subsequent processing will be dispatched to the same server instance. To change the dispatch destination, the procedure must be executed again starting from the "lookup" method.

(4) Executing business methods

Information about the dispatch destination server instance has been set in the object reference to the Remote interface that was returned in Step 3 above, and so requests to business methods will be sent directly to the server instance where the Enterprise JavaBean is running.

(5) Executing the "remove" method of the Remote interface

Requests to the "remove" method of the Remote interface are sent directly to the server instance where the Enterprise JavaBean is running, in the same way as above.

The following table shows the load balancing or failover behavior for each of the processes above.

Process	Load balancing or failover behavior
If the Home or Remote interface is used	When the "create" method of the Home interface is executed
(1) Generating an InitialContext	None (requests are not sent to the server)
(2) Executing the "lookup" method	Access fails over in order, starting from the first endpoint specified in the list of endpoints specified for the client
(3) Executing the "create" method of the Home interface	<p>Between the client and the EJB Dispatcher</p> <ul style="list-style-type: none"> - Failover for object references to the Home interface (*1) (This failover behavior is enabled by the "Object reference failover settings" setting for the server instance where the EJB Dispatcher is running.) <p>Between the client and the dispatch target server instance</p> <ul style="list-style-type: none"> - Load balancing based on the EJB Dispatcher - Failover for object references to the Home interface (*1) (This failover behavior is enabled by the "Object reference failover settings" setting for the server instance that is the dispatch target for the EJB Dispatcher.)
(4) Executing business methods	<p>Failover for object references to the Remote interface (*1)</p> <p>(This failover behavior is enabled by the "Object reference failover settings" setting for the server instance that is the dispatch target for the EJB Dispatcher.)</p>

*1 For information on the failover settings for object references, refer to ["4.23.5 Failover Settings for Object References"](#).

Method for Determining which Server Instance to Dispatch Processing To

The EJB Dispatcher creates a list of server instances that will be dispatch targets. When the EJB Dispatcher receives a request for an EJB application, it uses a round robin method to determine which server instance to dispatch the request to, starting from the top of the list and working in order.

4.23.2.3 Load Balancing Based on the Group Management Service

For the endpoint specified for clients (the host name and port combination), specify the server instance where the Enterprise JavaBean is running. When an RMI-IIOP client creates an InitialContext object, the client accesses the group management service (GMS) for the first endpoint specified in the list of endpoints specified for the client, and then gets a list of the valid server instances in the IJServer cluster for the server instance that has been accessed. This information that is obtained includes the following information that is required for IIOP communications.

Information that is obtained	Value
Host name	The value that has been set for the "Network address" in the IIOP listener definitions is returned. If "0.0.0.0" (the default) was set for the network address, however, the value specified for "Client Host Name" that is set in the Node Agent JMX connector is returned.
Port number	The value that has been set for the "Listener port" in the IIOP listener definitions is returned.

A random list of server instances is created from the list of server instances that has been acquired. The acquisition of the list of server instances is performed once by the process.

When an API (such as the "lookup" method) is executed on the InitialContext object that has been created, processing is requested to the first server instance in a random list of server instances. Every time an InitialContext object is created, the list of server instances is rotated to create another random list of server instances.

The processing on the object that has been acquired using the "lookup" method is requested to the server instance that was accessed by the "lookup" method. To perform load balancing, execute the procedure again, starting from the creation of the InitialContext.

If a communications error occurs with a request to the first connection destination in the list (an endpoint or server instance) so that the connection destination cannot be used, processing will fail over so that the second connection destination in the list is used, and so on to other connection destinations if necessary. If the connection destination server with the host name or IP address is not running, the failover will take some time.

Monitoring via Heartbeats

GMS uses heartbeat signals to periodically check whether a server instance is running normally. This means that the list of server instances returned by GMS varies depending on the heartbeat settings, as indicated below.

Heartbeat	List of server instances
Disabled	The list of server instances will include all of the server instances that belong to the cluster, regardless of the status of the server instances.
Enabled	The list of server instances will include only those server instances that the group management service has verified to be running normally on the basis that heartbeat signals are being sent normally.

Method for Creating a Random List of Server Instances

Each server instance in the IJServer cluster is weighted in order to balance load, with the weighting set to 100. The sum total of the weightings for each server instance is calculated. For example, if there are four server instances, the total will be 400.

Numbers 1 to 400 are allocated to each server instance as shown in the table below, and a server instance is then selected by using a random number to select a value within that range of numbers. In the following example, the server instances are "MyInstance-1", "MyInstance-2", "MyInstance-3" and "MyInstance-4". The nextInt(int n) method of the java.util.Random class is used to select random numbers. For details, refer to the Javadoc for the java.util.Random class.

Selected value	Server instance
1 to 100	MyInstance-1
101 to 200	MyInstance-2
201 to 300	MyInstance-3
301 to 400	MyInstance-4

A random list is created by moving the part of the list starting with the selected server instance to the start of the new list, and then moving the part of the list before the selected server instance to the end of the new list. In the example above, if 188 is selected as the random number, then 188 corresponds to MyInstance-2, and a new list will be created by moving the part of the list starting from MyInstance-2 to the start of the list, as below.

New list
MyInstance-2

New list
MyInstance-3
MyInstance-4
MyInstance-1

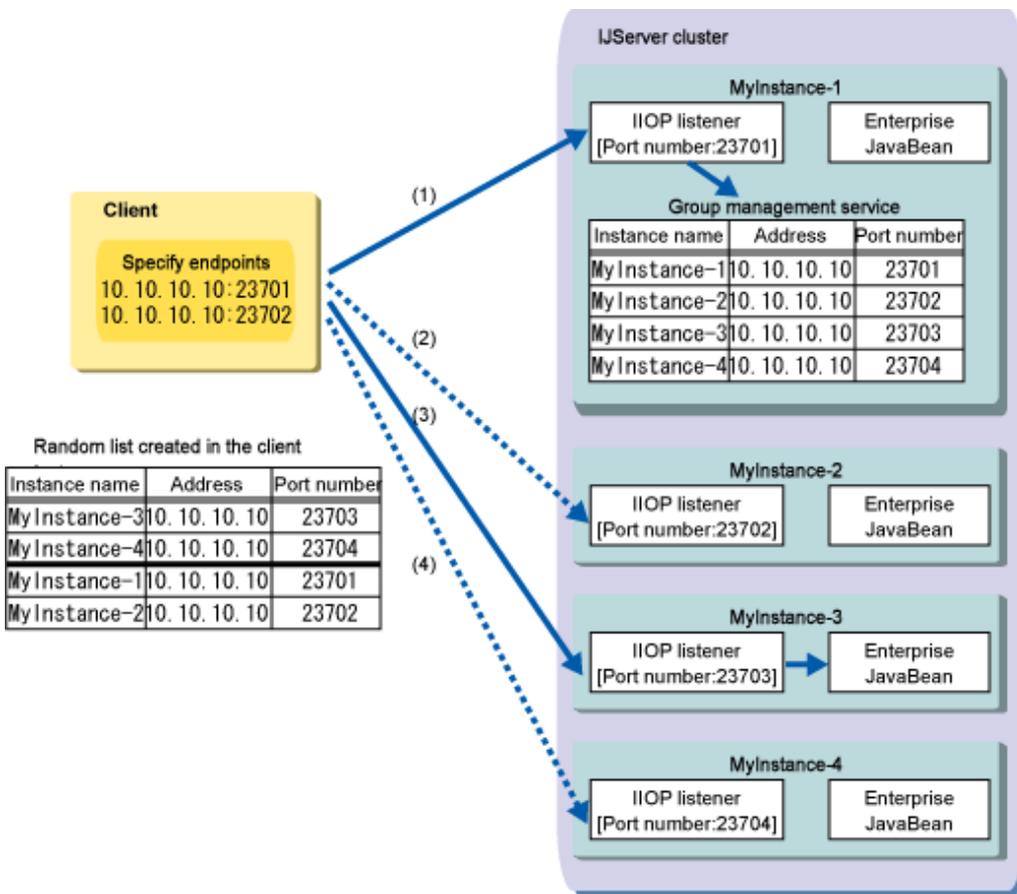
A schematic diagram is shown below.

In (1), access is made using the endpoints specified in the client, and then the list of server instances is obtained from the group management service.

If multiple endpoints are specified, access starts from the first endpoint that was specified. If the access fails, in (2) access is made from the next endpoint that was specified and the list of server instances is obtained from the group management service. A random list is generated in the client from the list of server instances that was obtained.

In (3) actual processing is requested to the first server instance in the random list that was generated.

If there are multiple server instances and the access in (3) fails, the request for processing is sent to the next server instance in (4).



4.23.3 Settings for the Server

This section explains the settings for the servers on which EJB applications run.

4.23.3.1 If a Load Balancing Function is not Used

Specify the following settings for IIOP load balancing for the IJServer cluster.

Setting item	Value
Load balancing method	disable

4.23.3.2 Load Balancing Based on the EJB Dispatcher Feature

To use the EJB Dispatcher feature, prepare an IJServer cluster to operate the EJB Dispatcher, as well as the IJServer clusters that will be dispatch targets for the EJB Dispatcher.

Set the following items for the IJServer cluster where the EJB Dispatcher runs.

Setting item	Value that is specified
Load balancing method	ejb-dispatch
Dispatch target	IJServer cluster name

The procedure for creating an environment with the `asadmin` command is as indicated below. For details on the definition items, refer to "7.4.1 IIOP Load Balancer Definition Items".

1. Create the IJServer clusters and server instances where the EJB application will run.

In the following execution example, the IJServer cluster where the EJB application runs is "EjbCluster" and the server instance is "EjbInstance001".

Example

```
>asadmin create-cluster EjbCluster
>asadmin create-instance --cluster EjbCluster EjbInstance001
```

2. Create the IJServer cluster and server instance where the EJB Dispatcher will run.

In the following execution example, the IJServer cluster where the EJB Dispatcher runs is "DispatchCluster" and the server instance is "DispatchInstance001".

Example

```
>asadmin create-cluster DispatchCluster
>asadmin create-instance --cluster DispatchCluster DispatchInstance001
```

3. Specify "EJB Dispatcher" for the load balancing method for the IJServer clusters that have been created. Also, for the dispatch target, specify the name of the IJServer cluster to which processing will be dispatched.

Example

```
>asadmin set DispatchCluster.iiop-load-balance.method=ejb-dispatch
>asadmin create-ejb-dispatch-target --target DispatchCluster EjbCluster
```

4. For modules that include the EJB application to which processing will be dispatched, execute the `createapplication-ref` command to enable the IJServer where the EJB Dispatcher will run.

Example

```
>asadmin deploy --target EjbCluster EjbApplication.ear
>asadmin create-application-ref --target DispatchCluster EjbApplication
```

4.23.3.3 Load Balancing Based on the Group Management Service

Specify the following settings for IIOP load balancing for the IJServer cluster.

Setting item	Value that is specified
Load balancing method	gms

Also, specify the following settings for the general information for the IJServer cluster.

Setting item	Value that is specified
Heartbeat	true
Heartbeat port	Specify a value that is unique within the domain.

Setting item	Value that is specified
Heartbeat address	Specify a multicast address that is unique within the domain.

4.23.4 Settings for the Client (the Caller)

This section explains the settings for the client that calls EJB applications.

4.23.4.1 If a Load Balancing Function is not Used

Settings for the IJServer Cluster

If the caller is an IJServer cluster, the following two methods can be used to specify the connection destination to be called.

1. Specifying the connection destination for another naming service in the settings for the JNDI service
2. Specifying the connection destination in the settings for the environment naming context

These specification methods are explained below.

1. Specifying the connection destination for another naming service in the settings for the JNDI service

By specifying a naming service URL in the settings for the JNDI service, settings can be specified for making inquiries with the naming service of another server instance with the specified URL if an object reference with the specified JNDI name has not been registered with the local server instance.

For this URL, specify the IIOP listener information for the server instance where the EJB application runs.

For details on how to implement the definitions, refer to ["7.4.2 JNDI Service Definition Items"](#).

2. Specifying the connection destination in the settings for the environment naming context

The rules of the Interoperable Naming Service (INS) can be used to specify the host name, IIOP listener port number and JNDI name for another process or remote server in the Interstage deployment descriptor file. For this setting, specify the IIOP listener information for the server instance where the EJB application is running.

For details, refer to ["2.14.2 Environment Naming Context"](#).

Settings for the Application Client Container

Define a "target-server" element in the Interstage ACC deployment descriptor file (sun-acc.xml). For the "targetserver" element, specify the connection destination of the server instance where the EJB application is running. For the "target-server" element, specify a name that is unique for the "name" attribute, the connection destination host for the "address" attribute using FQDN format or an IPv4 IP address, and the IIOP listener port number for the "port" attribute.

For the "property" element, either do not specify the "com.sun.appserv.iop.loadbalancingpolicy" property, or specify "disable".



Example

```

<client-container>
  <target-server name="server1" address="host1" port="23700"/>
  <property name="com.sun.appserv.iop.loadbalancingpolicy" value="disable"/>
</client-container>

```

Settings for Stand-alone Clients

Specify the following settings for the endpoint specifications. To specify this property, specify the same value for the applications that run in the same process. It is not possible to specify different values for applications on the same server instance, or to change the connection destination halfway. Either do not specify the "com.sun.appserv.iop.loadbalancingpolicy" system property, or specify "disable".

Property name	Value	Explanation
com.sun.appserv.iiop.endpoints	A list of host names and port numbers	Use the following format to specify the host names and IIOP communication port numbers for the server instances where the EJB application runs. <host name>:<port number> Example: host1:23700 The default value is "localhost:23600".



Example

```
-Dcom.sun.appserv.iiop.loadbalancingpolicy=disable
-Dcom.sun.appserv.iiop.endpoints=host1:23700
```

4.23.4.2 Load Balancing Based on the EJB Dispatcher Feature

For a load balancing policy, the following value can be specified for the "com.sun.appserv.iiop.loadbalancingpolicy" property. If the EJB Dispatcher feature is used, either do not specify a load balancing policy or specify "disable".

Property name	Value	Explanation
com.sun.appserv.iiop.loadbalancingpolicy	disable	Does not use load balancing or uses load balancing based on the EJB Dispatcher feature. This value is set by default.

Settings for the IJServer Cluster

If the caller is an IJServer cluster, the following two methods can be used to specify the connection destination to be called.

1. Specifying the connection destination for another naming service in the settings for the JNDI service
2. Specifying the connection destination in the settings for the environment naming context

If specifications are made using both methods, method 2 will take precedence. These specification methods are explained below.

1. Specifying the connection destination for another naming service in the settings for the JNDI service

By specifying a naming service URL in the settings for the JNDI service, settings can be specified for making inquiries with the naming service of another server instance with the specified URL if an object reference with the specified JNDI name has not been registered with the local server instance.

For this URL, specify the IIOP listener information for the server instance where the EJB Dispatcher is running. For details on how to make the definitions, refer to "[7.4.2 JNDI Service Definition Items](#)".

2. Specifying the connection destination in the settings for the environment naming context.

The rules of the Interoperable Naming Service (INS) can be used to specify the host name, IIOP listener port number and JNDI name for another process or remote server in the Interstage deployment descriptor file. For this setting, specify the IIOP listener information for the server instance where the EJB Dispatcher is running.

For details, refer to "[2.14.2 Environment Naming Context](#)".

Settings for the Application Client Container

Define a "target-server" element in the Interstage ACC deployment descriptor file (sun-acc.xml). For the "targetserver" element, specify the connection destination of the server instance where the EJB Dispatcher is running. If the IJServer cluster is running on multiple server instances, specify multiple endpoints, taking into account the possibility that the server instance where the EJB Dispatcher is running might stop abnormally. If multiple endpoints are specified, they will be accessed in order, starting from the first target specified.

For the "target-server" element, specify a name that is unique for the "name" attribute, the connection destination host for the "address" attribute using FQDN format or an IPv4 IP address, and the IIOP listener port number for the "port" attribute.

For the "property" element, either do not specify the "com.sun.appserv.iiop.loadbalancingpolicy" property, or specify "disable".

Example

```
<client-container>
  <target-server name="server1" address="host1" port="23700" />
  <target-server name="server2" address="host1" port="23701" />
  <property name="com.sun.appserv.iiop.loadbalancingpolicy" value="disable" />
</client-container>
```

Settings for Stand-alone Clients

Specify the following settings for the endpoint specifications. To specify this property, specify the same value for the applications that run in the same process. It is not possible to specify different values for applications on the same server instance, or to change the connection destination halfway. Either do not specify the "com.sun.appserv.iiop.loadbalancingpolicy" system property, or specify "disable".

Property name	Value	Explanation
com.sun.appserv.iiop.endpoints	A list of host names and port numbers	To perform load balancing, use the following format to specify the host names and IIOP communication port numbers for the server instances where the EJB Dispatcher runs. <host name>:<port number>[,<host name>:<port number>,...] Example: host1:23700,host1:23701 The default value is "localhost:23600".

Example

```
-Dcom.sun.appserv.iiop.loadbalancingpolicy=disable
-Dcom.sun.appserv.iiop.endpoints=host1:23700,host1:23701
```

4.23.4.3 Load Balancing Based on the Group Management Service

For a load balancing policy, the following value can be specified for the "com.sun.appserv.iiop.loadbalancingpolicy" property. The default value for this property is "disable", so be sure to specify this property if load balancing based on the group management service is to be used.

Property name	Value	Explanation
com.sun.appserv.iiop.loadbalancingpolicy	ic-based	Uses load balancing based on the group management service. Load will be balanced equally between server instances.

Settings for the IJServer Cluster

If the caller is an IJServer cluster, it is not possible to access Enterprise JavaBeans that have been registered with the naming service of another process or remote server from the IJServer cluster.

Setting up the Application Client Container

To use RMI-IIOP load balancing for Java EE application client connections, define a "target-server" element in the Interstage ACC deployment descriptor file (sun-acc.xml).

For the "target-server" element, specify a name that is unique for the "name" attribute, the connection destination host for the "address" attribute using FQDN format or an IPv4 IP address, and the IIOP listener port number for the "port" attribute. Specify the "com.sun.appserv.iiop.loadbalancingpolicy" property for the "property" element. Load will not be balanced if

"com.sun.appserv.iiop.loadbalancingpolicy" is not specified. Load balancing is performed in the same IJServer cluster as the first endpoint that was specified. If an endpoint that belongs to a different IJServer cluster is defined in the "target-server" element, it will be ignored.

Example

```
<client-container>
  <target-server name="server1" address="host1" port="23700" />
  <target-server name="server2" address="host1" port="23701" />
  <property name="com.sun.appserv.iiop.loadbalancingpolicy" value="ic-based" />
</client-container>
```

Settings for Stand-alone Clients

For the system property, specify the following value for com.sun.appserv.iiop.loadbalancingpolicy or for an endpoint specification. To specify this property, specify the same value for the applications that run in the same process. It is not possible to specify different values for applications on the same server instance, or to change the connection destination halfway.

Property name	Value	Explanation
com.sun.appserv.iiop.endpoints	A list of host names and port numbers	To perform load balancing, specify the host name and IIOP communications port number using the following format. <host name>:<port number>[,<host name>:<port number>,...] Example: host1:23700,host1:23701 The default value is "localhost:23600".

Example

```
-Dcom.sun.appserv.iiop.loadbalancingpolicy=ic-based
-Dcom.sun.appserv.iiop.endpoints=host1:23700,host1:23701
```

4.23.5 Failover Settings for Object References

When a processing request is sent to an object reference for an EJB application, if the server instance that generated or returned that object reference is already stopped, then the processing request can fail over to another server instance on the IJServer cluster. To use this function, enable "Object reference failover settings" in the IIOP load balancing settings.

4.24 IIOP Communication Load Balancing Using IPCOM

In Interstage Java EE, an IIOP communication load balancing function that is integrated with IPCOM can be used.

When this function is used, stable service operations are possible because IPCOM monitors the load status to each server so that it can forward requests (from users) that were made to the EJB application to the server that can respond the quickest.

Note

To use Stateful Session Beans, use load balancing based on the EJB Dispatcher feature. If load balancing based on the EJB Dispatcher feature is not used, sessions will not be inherited.

4.24.1 Using No Load Balancer or Using Load Balancing based on the EJB Dispatcher Feature

If load balancing is performed using IPCOM, the following settings are required.

In the following explanation, the execution environment where the EJB application runs is referred to as the "EJB container". The execution environment where the web application runs is referred to as the "Web container".

- [Setting up the EJB Container](#)
- [IPCOM Settings](#)
- [Setting up the Web Container](#)
- [Settings for the Client](#)

Setting up the EJB Container

The following settings are required on the server where the EJB container is placed (or, if the EJB Dispatcher feature is used, the server where the EJB Dispatcher is placed).

1. Network settings

On the server where the EJB container is placed (or the server where the EJB Dispatcher is placed if the EJB Dispatcher feature is used), set the "hosts" file shown below.

Windows32/64

```
<Windows(R) installation folder>\system32\drivers\etc\hosts
```

Solaris32/64 **Linux32/64**

```
/etc/hosts
```

Use an alias to add a host name declaration for the virtual IP address (virtual IP address set for the IPCOM site load balancing policy) to the host name and IP address statement for the local server, which is defined in the "hosts" file.

After adding the declaration, use the ping command to check that the host name can be resolved.



Example

In the following example, the host name of the local server is "host1" and the host name of the virtual IP address is "vhost". Note that IP address "192.0.2.21" is the real IP address for host1.

```
192.0.2.21 host1 vhost
```

2. Settings for the created IJServer cluster

- Set the following two items for the IJServer cluster that has been created. When an EJB Dispatcher is being used, set on the IJServer cluster where the EJB Dispatcher is operating. Setting is unnecessary on the IJServer cluster that is the target of EJB Dispatcher dispatching.

Definition item	Settings
Non-fragment mode	<p>Set the following value for the Java VM options (system properties) to prevent ORB transmission data from being split.</p> <p>-Dcom.sun.corba.ee.giop.ORBGIOP12BuffMgr=GROW</p> <p>By setting this property, transmission data will no longer be split, regardless of the maximum message split size.</p>
Virtual host name specification	<p>As the IIOP listener network address, specify the host name of the virtual IP address that was declared in the hosts file.</p>

Definition item	Settings
	 Note For the value set for the network address of the IIOP listener, specify a host name rather than a virtual IP address. If a virtual IP address is specified, the IJServer cluster will fail to start.

The values of the Java VM options can be changed using either the Interstage Java EE Admin Console or the asadmin command. For details, refer to the following manuals:

- Interstage Java EE Admin Console Help
- "Java EE Operation Commands" - "asadmin" - "Subcommands - Category: Referencing/Updating Definition Items"
- "Java EE Operation Commands" - "asadmin" - "Subcommands - Category: System Property /JVM Option" - "create-jvm-optionSubcommand"

The settings for the IIOP listener can be changed using either the Interstage Java EE Admin Console or the asadmin command. For details, refer to the following manuals:

- Interstage Java EE Admin Console Help
- "Java EE Operation Commands" - "asadmin" - "Subcommands" - "Category: Referencing/Updating Definition Items" - "set Subcommand" - "Definition Items of the configs.config.iiop-service"
- To use the load balancing function for IIOP communications linked to IPCOM, the amount of heap usage required when the application executes must be taken into account. Estimate the amount of heap usage for the Java VM.
- If the transmission data size for the connection destination exceeds 256,000 bytes, increase the maximum reception buffer size.

3. Module deployment

No special operations are required if the server instance where the EJB container (or EJB Dispatcher if the EJB Dispatcher feature is used) to which processing is dispatched belongs to the same IJServer cluster.

To deploy an application linked to IPCOM when the server instance where the EJB container (or EJB Dispatcher if the EJB Dispatcher feature is used) to which processing is dispatched belongs to a different IJServer cluster, an ID that is unique within the IJServer cluster must be defined in the following tags. For details, refer to "[3.1.14 Notes About Integration with IPCOM](#)".

Deployment module	Tag
EJB-JAR	The <unique-id> tag of the "sun-ejb-jar.xml" file
EAR	The <unique-id> tag of the "sun-application.xml" file

IPCOM Settings

- For details on IPCOM settings, refer to the IPCOM manual.
- Of the load balancing methods that require a load measurement agent, the "minimum number of messages waiting" and "minimum communications buffer usage rate" methods cannot be used with Interstage Java EE.
- For the session maintenance settings for the load balancing policy (for guaranteeing uniqueness), it is recommended that settings be specified so that load can be balanced for each connection.

Also, for the IIOP load balancing settings, specify settings so that load is balanced for each method call.

- For the virtual port number, specify the port number of the IIOP listener for which the virtual host name was specified, on the server where the EJB application (or EJB Dispatcher if the EJB Dispatcher feature is used) is running.

Note

.....
 To specify settings so that load is balanced for each method call, an IPCOM device that supports IIOP load balancing is required.

Setting up the Web Container

The following settings are required on the server where the web container is placed.

1. Network settings

On the server where the web container is placed, set the "hosts" file shown below.

Windows32/64

```
<Windows(R) installation folder>\system32\drivers\etc\hosts
```

Solaris32/64 **Linux32/64**

```
/etc/hosts
```

Add declarations for the hostname of the virtual IP address and all hostnames of the servers that run the EJB application (if the EJB dispatch feature is used, this will be the EJB dispatcher).

After adding the declarations, for declarations other than virtual IP address hostnames, use the ping command to check if the hostname has been resolved.

Additionally, for virtual IP address hostname declarations, check if the declaration is correct according to the IPCOM virtual IP address setting.



Example

In the following example, the host names in the server group where the EJB application (or the EJB Dispatcher if the EJB Dispatcher feature is used) is running are "host1" and "host2", and the host name for the virtual IP address is "vhost".

Note that IP address "192.0.2.21" is the real IP address of host1, and IP address "192.0.2.22" is the real IP address of host2.

```
192.0.2.10 vhost
192.0.2.21 host1
192.0.2.22 host2
```

2. JNDI settings

For the host name specified in the JNDI settings, specify the virtual host name. For details, refer to "[Specifying a Virtual Host Name in the JNDI Name](#)" under "[3.1.14 Notes About Integration with IPCOM](#)".

3. Non-fragment mode settings

- To call an EJB application on a IJServer cluster from another IJServer cluster, specify the following settings for the IJServer cluster that has been created.

Definition item	Settings
Non-fragment mode	<p>Set the following value for the Java VM options (system properties) to prevent ORB transmission data from being split.</p> <p>-Dcom.sun.corba.ee.giop.ORBGIOP12BuffMgr=GROW</p> <p>By setting this property, transmission data will no longer be split, regardless of the maximum message split size.</p>

The values of the Java VM options can be changed using either the Interstage Java EE Admin Console or the asadmin command. For details, refer to the following manuals:

- Interstage Java EE Admin Console Help
- "Java EE Operation Commands" - "asadmin" - "Subcommands - Category: System Property /JVM Option" - "create-jvm-option Subcommand"
- To use the load balancing function for IIOP communications linked to IPCOM, the amount of heap usage required when the application executes must be taken into account. Estimate the amount of heap usage for the Java VM.

- If the transmission data size for the connection destination exceeds 256,000 bytes, increase the maximum reception buffer size.

Settings for the Client

To call an EJB application on the server from a client without using a web container, specify the following settings.

1. Network settings

Add to the "hosts" file the host names of virtual IP address and the host name declarations for all the servers where the EJB container (or the EJB Dispatcher if the EJB Dispatcher feature is used) is running. For information on the setting method, refer to "[Setting up the Web Container](#)".

2. JNDI settings

For the connection destination host name specified in "[4.14.3 Settings for Connections from the Client to the Server](#)", specify the virtual host name used for IPCOM linkage.

3. Non-fragment mode settings

- Set the following property for the Java VM options.

Definition item	Settings
Non-fragment mode	<p>Set the following value for the Java VM options (system properties) to prevent ORB transmission data from being split. - Dcom.sun.corba.ee.giop.ORBGIOP12BuffMgr=GROW</p> <p>By setting this property, transmission data will no longer be split, regardless of the maximum message split size.</p>

- To use the load balancing function for IIOP communications linked to IPCOM, the amount of heap usage required when the application executes must be taken into account. Estimate the amount of heap usage for the Java VM.
- If the transmission data size for the connection destination exceeds 256,000 bytes, increase the maximum reception buffer size.

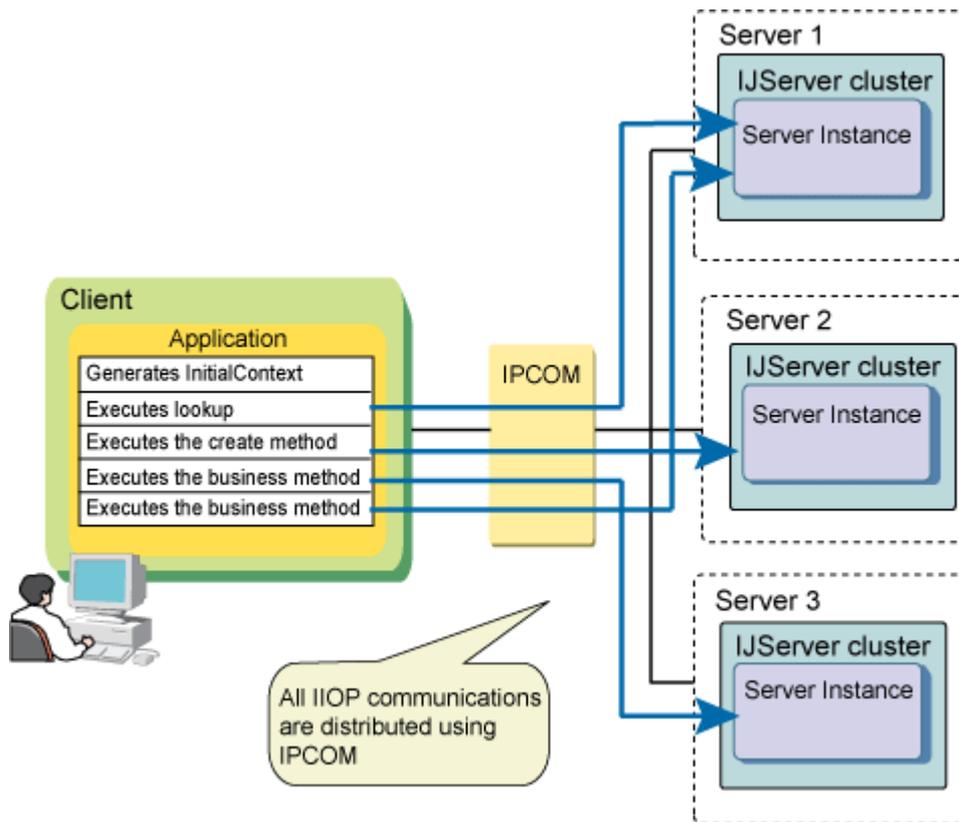
Communication pathway

This refers to the communication pathway when IPCOM is used for load balancing.

When load balancing is not used

All IIOP communications are performed using IPCOM.

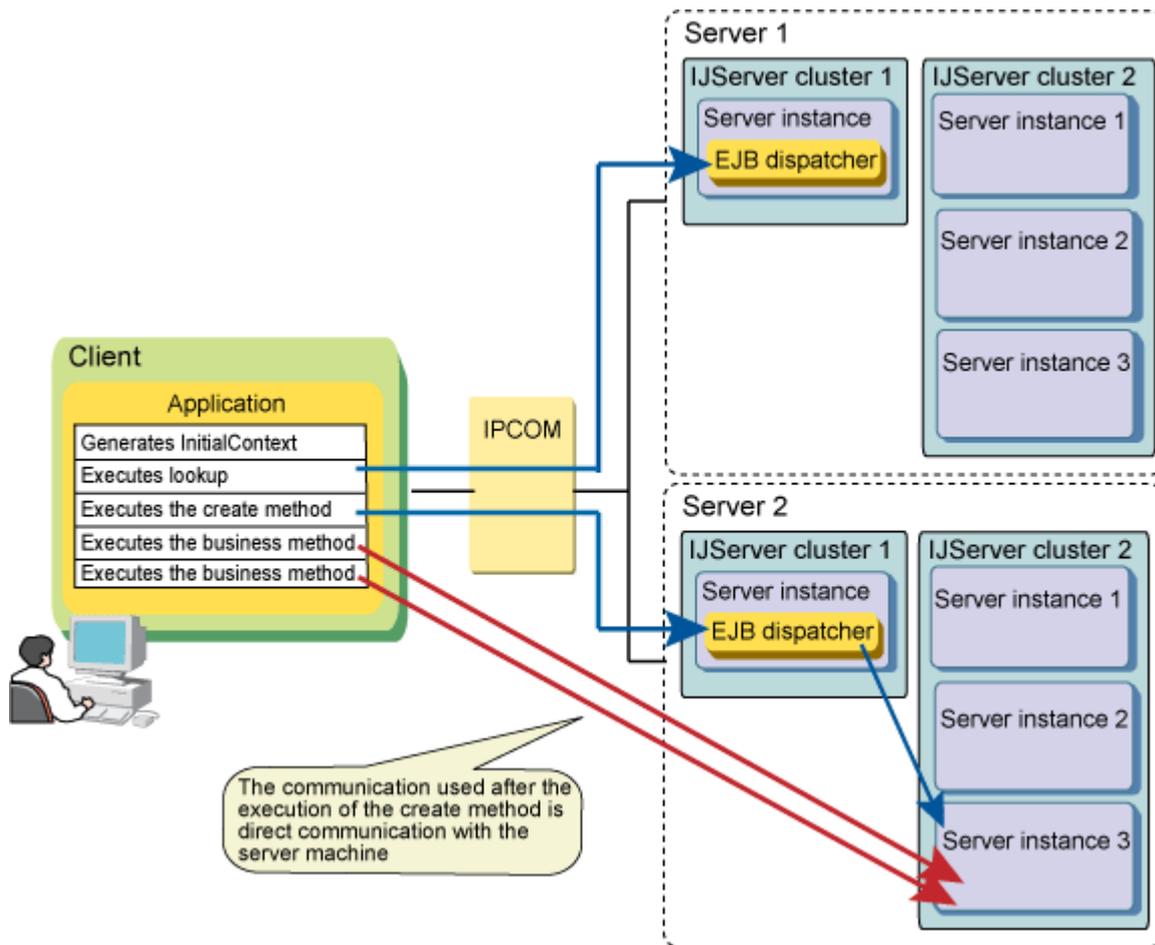
In the example in the figure below, the Home/Remote interface is used.



Load balancing using the EJB dispatch feature

After the create method is executed, there is direct communication with the server machine that was allocated by executing the create method.

In the example in the figure below, the Home/Remote interface is used.



4.24.2 Using Load Balancing Based on the Group Management Service

For IIOP load balancing using IPCOM for communication between the web container and the EJB container, build the environment according to the following procedure.

- [EJB Container Settings](#)
- [IPCOM Settings](#)
- [Web Container Settings](#)

To call server EJB applications from the client without using the web container, refer to the following.

- [Client Settings](#)

EJB Container Settings

The following settings are required in the server that the EJB container is deployed to.

1. Set the network

In the server that the EJB container is deployed to, set the following hosts file.

Windows32/64

Windows(R) installation folder\system32\drivers\etc\hosts

Solaris32/64 **Linux32/64**

/etc/hosts

The virtual IP address host name declaration for the local server host name and IP address settings that are defined the hosts file is added using another name.

After the declaration is added, check that the host name is resolved using the ping command.

Example

In the following example, the host name of the server group that the EJB container is deployed to is host1, and the virtual IP address host name is vhost. The "192.0.2.21" IP address is the actual IP address of host1.

```
192.0.2.21 host1 vhost
```

2. Create the IJServer cluster

- Set the following two items for the IJServer cluster that was created.

Definition item	Content that is set
Non-fragment mode	<p>Set the following value for the Java VM options (system properties) to prevent ORB transmission data from being split.</p> <p>-Dcom.sun.corba.ee.giop.ORBGIOP12BuffMgr=GROW</p> <p>By setting this property, transmission data will no longer be split, regardless of the maximum message split size.</p>
Specifying a virtual host name	<p>As the IIOP listener network address, specify the host name of virtual IP address that was declared in the hosts file.</p> <p> Note</p> <p>For the value set for the network address of the IIOP listener, specify a host name rather than a virtual IP address. If a virtual IP address is specified, the IJServer cluster will fail to start.</p>

The values of the Java VM options can be changed using either the Interstage Java EE Admin Console or the asadmin command. For details, refer to the following manuals:

- Interstage Java EE Admin Console Help
- "Java EE Operation Commands" - "asadmin" - "Subcommands - Category: Referencing/Updating Definition Items"
- "Java EE Operation Commands" - "asadmin" - "Subcommands - Category: System Property /JVM Option" - "create-jvm-optionSubcommand"
- To use the load balancing function for IIOP communications linked to IPCOM, the amount of heap usage required when the application executes must be taken into account. Estimate the amount of heap usage for the Java VM.
- If the transmission data size for the connection destination exceeds 256,000 bytes, increase the maximum reception buffer size.

3. Deploy the module

To deploy applications that are integrated with IPCOM, an ID that is unique in the IJServer cluster must be defined in the following tags. For details, refer to "[3.1.14 Notes About Integration with IPCOM](#)".

Deployment module	Tag
EJB-JAR	unique-id tag of sun-ejb-jar.xml
EAR	unique-id tag of sun-application.xml

IPCOM Settings

- For details on the IPCOM settings, refer to the IPCOM manual.
- Of the balancing methods that require the load measuring agent, "Minimum number of wait messages" and "Minimum communication buffer usage rate" cannot be used in Interstage Java EE.

- For the session maintenance settings for the load balancing policy (for guaranteeing uniqueness), it is recommended that settings be specified so that load can be balanced for each connection.

Also, for the IIOp load balancing settings, specify settings so that load is balanced for each method call.

- For the virtual port number, specify the port number of the IIOp listener for which the virtual host name was specified, on the server where the EJB container is deployed to.

Note

To specify settings so that load is balanced for each method call, an IPCOM device that supports IIOp load balancing is required.

Web Container Settings

The following settings are required in the server that the web container is deployed to.

1. Set the network

In the server that the web container is deployed to, set the following hosts file.

Windows32/64

```
Windows(R) installation folder\system32\drivers\etc\hosts
```

Solaris32/64 **Linux32/64**

```
/etc/hosts
```

Add declarations for the hostname of the virtual IP address and all hostnames of the servers to which the EJB container is deployed.

After adding the declarations, for declarations other than virtual IP address hostnames, use the ping command to check if the hostname has been resolved.

Additionally, for virtual IP address hostname declarations, check if the declaration is correct according to the IPCOM virtual IP address setting.



Example

In the following example, the host name of the server groups that the EJB container is deployed to are host1 and host2, and the virtual IP address host name is vhost. The "192.0.2.21" IP address is the actual IP address of host1, and the "192.0.2.22" IP address is the actual IP address of host2.

```
192.0.2.10 vhost
192.0.2.21 host1
192.0.2.22 host2
```

2. Set JNDI

Specify the virtual host name in the JNDI name that is specified in the Interstage deployment descriptor file. For details, refer to "[3.1.14 Notes About Integration with IPCOM](#)" - "[Specifying a Virtual Host Name in the JNDI Name](#)".

3. Set Non-fragment mode

- To call different IJServer cluster EJB applications from the IJServer cluster, set the following for the IJServer cluster that was created.

Definition item	Content that is set
Non-fragment mode	Set the following value for the Java VM options (system properties) to prevent ORB transmission data from being split. -Dcom.sun.corba.ee.giop.ORBGIOP12BuffMgr=GROW

Definition item	Content that is set
	By setting this property, transmission data will no longer be split, regardless of the maximum message split size.

The values of the Java VM options can be changed using either the Interstage Java EE Admin Console or the asadmin command. For details, refer to the following manuals:

- Interstage Java EE Admin Console Help
- "Java EE Operation Commands" - "asadmin" - "Subcommands - Category: System Property /JVM Option" - "create-jvm-option Subcommand"
- To use the load balancing function for IIOP communications linked to IPCOM, the amount of heap usage required when the application executes must be taken into account. Estimate the amount of heap usage for the Java VM.
- If the transmission data size for the connection destination exceeds 256,000 bytes, increase the maximum reception buffer size.

Client Settings

To call server EJB applications from the client without using the web container, refer to the following:

1. Set the network

The host name of the virtual IP address and the host name declarations for all the servers that the EJB container is deployed to are added to the hosts file. For details on the settings method, refer to "[Web Container Settings](#)".

2. Set JNDI

Specify the virtual host name used for IPCOM linkage in the connection destination host name that is specified in "[4.14.3 Settings for Connections from the Client to the Server](#)".

3. Set Non-fragment mode

- Set the following property for the Java VM options.

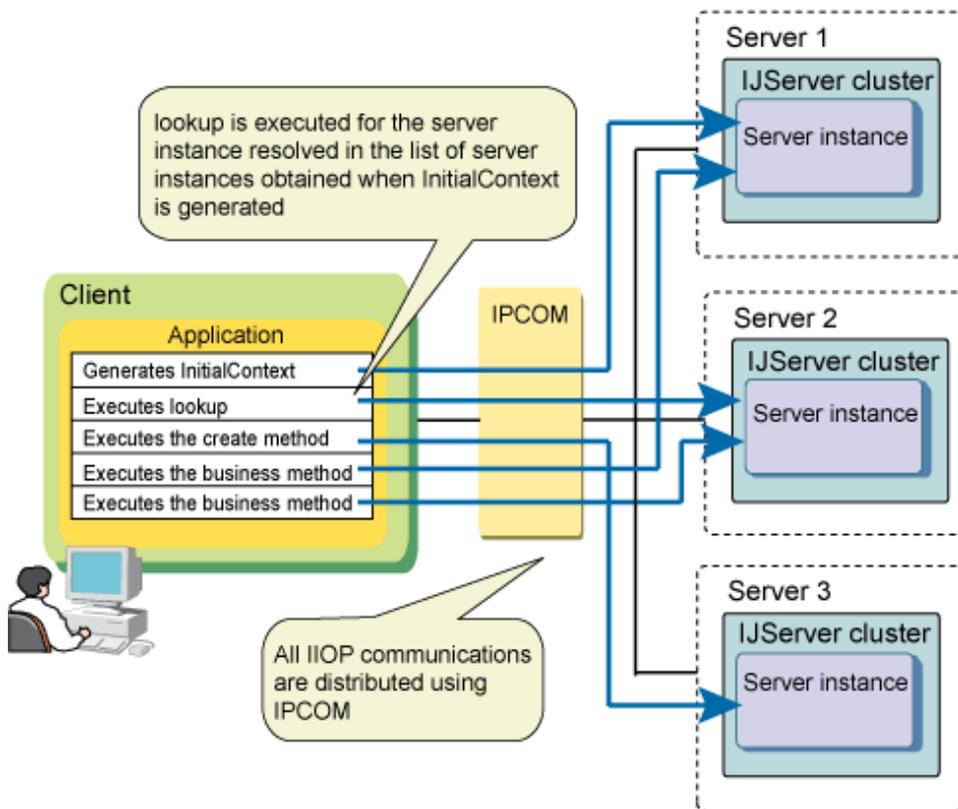
Definition item	Settings
Non-fragment mode	Set the following value for the Java VM options (system properties) to prevent ORB transmission data from being split. - Dcom.sun.corba.ee.giop.ORBGIOP12BuffMgr=GROW By setting this property, transmission data will no longer be split, regardless of the maximum message split size.

- To use the load balancing function for IIOP communications linked to IPCOM, the amount of heap usage required when the application executes must be taken into account. Estimate the amount of heap usage for the Java VM.
- If the transmission data size for the connection destination exceeds 256,000 bytes, increase the maximum reception buffer size.

Communication pathway

When IPCOM is used for load balancing, all IIOP communications are performed using IPCOM.

In the example in the figure below, the Home/Remote interface is used.



4.25 Operations where Enterprise JavaBeans are Accessed

There are the following two types of Enterprise JavaBeans.

- Session Bean
- Message-driven Bean

This section explains the environment settings required to access each type of Enterprise JavaBean that has been deployed to either an IJServer cluster or an Interstage Java EE DAS service.

4.25.1 Accessing Session Beans

Session Beans process requests from the calling application synchronously. If a local interface (such as an interface with `@Local` annotation defined) is used, Session Beans can be called from only applications that have been deployed to the same server instance. If a remote interface (such as an interface with `@Remote` annotation defined) is used, Enterprise JavaBeans can be called from remote machines via IIOB communications, as well as from applications that have been deployed to the same server instance. In this case, the functions that can be used and the environment settings for the caller differ depending on the caller type, as indicated below.

1. Applications on the same server instance and in the same deployment module
2. Applications on the same server instance and in a different deployment module
3. Applications on a different server instance
4. Java EE application clients
5. Java SE stand-alone applications
6. J2EE runtime environment (IJServer) applications

Functions that can be Used

The following table shows the differences in the functions that can be used with each type of the caller. "Yes" indicates functions that can be used.

Function	Applications on the same server instance and in the same deployment module	Applications on the same server instance and in a different deployment module	Applications on a different server instance	Java EE application clients	Java SE stand-alone applications	J2EE runtime environment (JServer) applications
Dynamic stubs	Yes	Yes	Yes	Yes	Yes	Yes
Local calls	Yes	-	-	-	-	-
Passing by reference when remote interfaces are used	Yes	-	-	-	-	-

The functions that can be used with each type of the caller are explained below.

- Dynamic Stubs

When an EJB is called using a remote interface, the EJB is called via a proxy class known as a "stub" in order to hide the IIOP communication processing. This stub is called a "dynamic stub" because it is generated dynamically based on the interface information. (With J2EE, stubs were generated at deployment time, and so the client distributable that included the stub had to be set in the classpath for the caller.) This means the caller can call the EJB so long as it can look up the interface.

For details on IIOP communications, refer to ["2.12 ORB \(Object Request Broker\)/RMI-IIOP"](#).

- Local Calls

If an EJB is called using a remote interface within the same server instance or the same deployment module, the stub will call the EJB automatically without directing calls via IIOP communications. This is referred to as a "local call".

- Passing By Reference when Remote Interfaces are Used

There are two ways of passing arguments and return values when method calls are made: "pass by value" and "pass by reference".

For "pass by value", copies of the arguments and return values are passed to the caller. This means that the callee is not affected even if the values are changed by the caller.

For "pass by value", references to the arguments and return values are passed to the caller. This means that if a value is changed by the caller, the status of the callee is also changed.

When a method is called via the Internet using IIOP communications, the call will be between different Java VMs, and so the call will always be a "pass by value" call. For this reason, if remote interfaces are used taking general usage into account, by default, processing will run using "pass by value". However, if an EJB is called using a remote interface from within the local server instance, "pass by reference" will result in better performance than "pass by value" because copies of values are not generated, and so it is possible to change the processing behavior to "pass by reference".

To change to "pass by reference", define a <pass-by-reference> tag in the Interstage EJB application deployment descriptor file (sun-ejb-jar.xml) for the callee EJB, and specify "true" for this tag.

For details on the Interstage EJB application deployment descriptor file, refer to ["3.2.3 Interstage Deployment Descriptor"](#).

Environment Settings for the Caller

The following table shows the environment settings that are required for each type of caller. "R" indicates that environment settings are required. "C" indicates that environment settings may be required (conditional).

Environment setting item	Applications on the same server instance and in the same deployment module	Applications on the same server instance and in a different deployment module	Applications on a different server instance	Java EE application clients	Java SE stand-alone applications	J2EE runtime environment (IJSERVER) applications
Client stub JAR file	-	-	-	R	-	-
JNDI environment variable settings	-	-	-	-	R	R
Settings for remote interfaces	-	R	R	C	R	R
Connection destination settings	-	-	R	R	R	R

These environment settings are explained below.

- Client Stub JAR File

To use a Java EE application client, deploy the module that includes the application client (the "client-jar" file) and then use either the Interstage Java EE Admin Console or the get-client-stubs subcommand of the asadmin command to download the client stub JAR files. Client stub JAR files are not required when using applications other than Java EE application clients.

- JNDI Environment Variable Settings

When an EJB is called by either a Java SE stand-alone application or a J2EE runtime environment (IJSERVER) application, JNDI will be used and so environment variables for JNDI must be set. With application client containers that run Java EE application clients or server instances, JNDI environments are set up automatically, and so there is no need to set environment variables.

- Settings for Remote Interfaces

When an EJB is called using a remote interface, it is called using a dynamic stub, and so the EJB can be called so long as the remote interface can be looked up from the application.

The classes of an Enterprise JavaBean (the classes included in an ejb-jar file) are loaded by an Application class loader that can look up classes within the same deployment module, so there is no need to set remote interfaces in the classpath as long as the calling application is in the same server instance or deployment module.

For Java EE application clients that run by downloading client stub JAR files from a deployment module, if client stub JAR files are downloaded for an enterprise application (an "ear" file) that includes both an EJB module (an "ejb-jar" file) and an application client (a "client-jar" file) then the EJB is included within the deployment module and there is no need to specify classpath and other settings.

In all other cases, when the calling application is not in the same deployment module, set the remote interface so that the EJB can be looked up by the calling application. For details on the settings, refer to ["2.23 Class Loader"](#).

- Connection Destination Settings

If an EJB is called using a remote interface from an application running on a server instance, by default the EJB on the same server instance will be called automatically. This means that there is no need to specify the host name and port number of the connection destination.

If an EJB is called from an application on another server instance, the connection destination will be set using the function for linking to another naming service. For details, refer to ["2.14 JNDI"](#).

For Java EE application clients, set up connection destinations by specifying endpoints in the "sun-acc.xml" file. For Java SE stand-alone applications and J2EE runtime environment (IJSERVER) applications, set up connection destinations by specifying "com.sun.appserv.iiop.endpoints" in the system property for the Java VM. For details, refer to ["4.23.4 Settings for the Client \(the Caller\)"](#).

4.25.2 Accessing Message-driven Beans

A "Message-driven Bean" is an Enterprise JavaBean that processes asynchronous messages from JMS and connectors. For Message-driven Beans, messages transmitted from JMS or connectors are processed regardless of the type of calling application. There are no particular difference in behavior as a result of differences in the caller.

4.26 Symfoware Audit Trails

4.26.1 Design Method

To output thread information and the server instance name to Symfoware audit logs, specify settings so that access information is output to Symfoware audit logs when defining the JDBC connection pools with Interstage Application Server. For details, refer to the definition details and command details. Use the defined data sources by looking them up with the JNDI function provided by Java EE.

Product Configuration

The following products are required to design the system.

- Symfoware Server 9.0 or later
- Systemwalker Centric Manager V13 or later

Performance

Writing audit logs will increase the volume of data exchanged with the database, which will slightly affect performance. For this reason, it is recommended that different data sources be used for different purposes, as below. Also, be sure to implement a performance evaluation before using audit logs.

- For applications that only search the database and do not need to be audited, prepare a data source that does not output thread information or server instance names to access logs.
- For applications that need to be audited, such as applications that execute update processing on the database, prepare a data source that outputs thread information or server instance names to access logs.



.....
To use different data sources simultaneously within a single transaction, distributed transactions are used because the consistency of the transaction needs to be maintained. However, the use of distributed transactions should be avoided as far as possible because of problems with performance and reliability, so design the application so that only one data source is accessed within a single transaction.
.....

4.26.2 Operating Method

1. Environment setup

- Setting up the audit log database

Set up a Symfoware audit log database, and specify settings so that audit logs are collected. For details, refer to the Symfoware manual.

- Settings for HTTP access logs

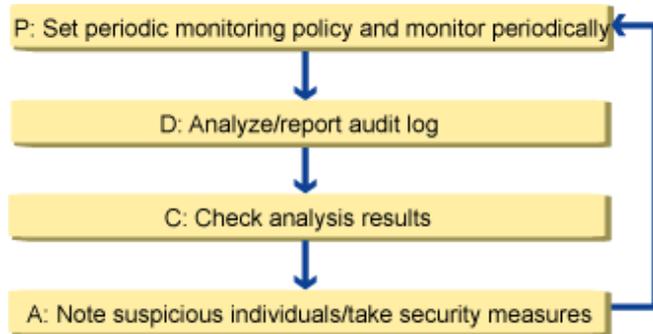
Refer to "[4.22.3 HTTP Access Log](#)".

- Settings for Symfoware audit trails

For details, refer to "[7.6.1 JDBC Connection Pool Definition Items](#)", and "Java EE Operation Commands" - "Definition Items that can be Executed by the asadmin Command" - "Definition Items of the Resources" - "Definition Items of the resources,jdbc-connection-pool".

2. Trace investigations

The following figure shows an operational model for security audit trails. This assumes an operational model where security measures are implemented using a PDCA (Plan-Do-Check-Action) cycle as shown below.



Set up a security policy for the system, and use Systemwalker Centric Manager to monitor audit logs periodically. The system management department analyzes the audit logs that have been collected, and reports to the security audit committee and so on. The security audit committee checks the results of the analysis and, if irregularities are detected, issues warnings to suspicious persons or implements security measures if required.

Chapter 5 Java EE Function Security

This chapter explains Java EE application security.

5.1 Java EE Operating Environment Security Function

This section explains the Java EE operating environment security function.

5.1.1 Java EE Operating Environment Roles

In the Java EE operating environment, access control is performed using roles that are based on OS user privileges.

The user that performs a Java EE operation must either be the OS system administrator, or belong to the Interstage operator group.

An overview of these roles is shown below. For details on the operation privileges that are granted to the role, refer to "Privileges and Authenticated Users".

Interstage Operator Group Users

General operations that include the privileges for operations, reference, and changing definitions shown below can be executed. There are privileges for the execution of all operations using the asadmin command.

Privileges for operations

IIServer clusters can be created, started, and stopped. Operations for services used by user applications, such as Java DB, can also be executed.

Reference privileges

Application and system configurations, and their current status, can be referenced. Various log information can also be referenced.

Privileges for changing definitions

New applications can be created, application configurations can be changed, and applications can be deployed. It is also possible to create new resources from resources created by applications, or change their configuration.

OS System Administrator

In addition to the operations that can be executed by the Interstage operator group users, the OS system administrator can also:

- Perform Interstage Java EE DAS/Interstage Java EE Node Agent service start/stop/status reference operations
- Initialize the Java EE environment
- Specify a "service operator user" (special Java EE environment-specific user)

OS Users and Roles

The relationships between the OS users and roles are as follows:

Execution privileges	OS user
Interstage operator group users	Windows32/64 All general users Solaris32/64 Linux32/64 Users in a group that was specified using enhanced security mode and is then set as the primary group
OS system administrator	Windows32/64 Users belonging to the Administrators group Solaris32/64 Root (or user assigned the root role) (*1)

Execution privileges	OS user
	Linux32/64 Root

*1 When root is used in Solaris, it may sometimes be necessary to change the operating system settings.

For details on how to use root in Solaris, refer to "Notes on Using 'root' in Solaris" in the "Release Information" chapter of the Java EE Operator's Guide.

For details on Interstage operator groups, refer to the Interstage Application Server Installation Guide.

5.1.2 IJServer Cluster Process Execution Privileges

Solaris32/64 Linux32/64

The effective privileges for the server instances under the IJServer cluster can be customized.

In the initial setting, the server instance runs using the effective privileges of the OS system administrator. However, by changing the effective privileges to a user that is not the system administrator, it is possible to control operations that can be effected in applications that run on the IJServer cluster.

The effective user of this server instance is called the "service operator user".

By managing the execution privileges for server instance processes, it is possible to reduce security risks that occur through the running of involuntary illegal applications that corrupt the system resources.

Execution privileges	OS user
Service operator user	Windows32/64 Cannot be specified. Solaris32/64 Linux32/64 Java EE environment-specific users in the Interstage operator group that will be the primary group. Set this using the ijsetoperatorid command (for details, refer to "ijsetoperatorid" in the "Java EE Operation Commands" chapter).

Note

- IJServer cluster process execution privileges cannot be specified in Windows environments.
For this reason, the service operator user cannot be specified at the time of the installation or the execution of the initialization command. There is also no ijsetoperatorid command.
- Before specifying the service operator user, stop all services that are running, including the Interstage Java EE DAS service/Interstage Java EE Node Agent service.
- When the issetsecuritymode command or ijinit command (except when the -existing option is specified) is executed, the service operator user will be initialized as root. If necessary, execute the ijsetoperatorid command to reset the service operator user.
- If the service operator user was changed, the effective user of the Interstage Java EE DAS service or Interstage Java EE Node Agent service will be as follows:

	When the operating system realm is selected	When the file realm or ldap realm is selected
Interstage Java EE DAS service	root	Service operator user
Interstage Java EE Node Agent service	Service operator user	Service operator user

5.1.3 Login Authentication

When an operation is to be executed in the Java EE operation environment, login authentication is executed using the operations realm.

In the initial settings, for the OS realm, specify the user ID and password of the user you are using to log in to the operating system. However, for the file or ldap realm, specify the user ID and password of the administrator user for the Interstage application server.

For details on how to create the login user and specify the user/password used for authentication, refer to ["5.1.5 Registering the Administrator User"](#).

The operations realm is used for login authentication. For details on the types of realms that can be specified, refer to ["5.2.5 Realm"](#).

5.1.4 Privileges and Authenticated Users

The table below lists the execution privileges for all operations provided in the Java EE environment, execution privileges for the server processes generated, and details of the authenticated users:

Note: The following abbreviations are used:

- DAS - Interstage Java EE DAS service
- NA - Interstage Java EE Node Agent service

Operation	OS user privileges		User who performs login authentication
	Command execution privileges (*1)	Server process execution privileges Solaris32/64 Linux32/64	
Initializing the Java EE environment - ijinit	OS system administrator	-	No authentication
Starting of the DAS/NA service - ijdasstart - ijnastart - isstart	OS system administrator	Service operator user	When the OS realm is selected: No authentication When the file/ldap realm is selected: Service operator user
Automatically starting the DAS/NA service	-	Service operator user	When the OS realm is selected: No authentication When the file/ldap realm is selected: Service operator user
Stopping the DAS/NA service - ijdasstop - ijnastop - isstop	OS system administrator	-	No authentication
Displaying the status of the DAS/NA service - ijdasstat - ijnastat - isstat	OS system administrator	-	No authentication
Specifying an Interstage operator group	OS system administrator	-	No authentication

Operation	OS user privileges		User who performs login authentication	
	Command execution privileges (*1)	Server process execution privileges Solaris32/64 Linux32/64		
Solaris32/64 Linux32/64 - issetsecuritymode				
Specifying a service operator user Solaris32/64 Linux32/64 - ijsetoperatorid	OS system administrator	-	No authentication	
Backing up/exporting Java EE environment resources - ijbackup	OS system administrator	-	No authentication	
Restoring/importing Java EE environment resources - ijrestore	OS system administrator	-	No authentication	
Using the asadmin command	Starting the IJServer cluster and server instances - start-cluster - start-instance	Windows32/64 General user Solaris32/64 Linux32/64 Interstage operator group user	Service operator user User specified when the command is executed (*2)	
	Specifying a service administrator user/ password - change-service-adminuser	Windows32/64 General user Solaris32/64 Linux32/64 Interstage operator group user	- User specified when the command is executed (*2)	
	Displaying the service administrator user ID - show-service-adminuser	Windows32/64 General user Solaris32/64 Linux32/64 Interstage operator group user	- User specified when the command is executed (*2)	
	Changing the administrator user password - change-admin-password	Windows32/64 General user Solaris32/64 Linux32/64 Interstage operator group user	- User specified when the command is executed (*2)	
	Creating the login file (.asadminpass) - login	Windows32/64 General user Solaris32/64 Linux32/64 Interstage operator group user	- User specified when the command is executed (*2)	
	Starting the Java DB (Client/server environments)	Windows32/64 General user	Same as the command execution privileges	User specified when the command is executed

Operation		OS user privileges		User who performs login authentication
		Command execution privileges (*1)	Server process execution privileges Solaris32/64 Linux32/64	
	- start-database	Solaris32/64 Linux32/64 Interstage operator group user		(*2)
	Other	Windows32/64 General user Solaris32/64 Linux32/64 Interstage operator group user	-	User specified when the command is executed (*2)
Starting the application client container - applclient		General user	-	No authentication
Obtaining the database schema information - capture-schema		General user	-	No authentication
Starting the message broker - imqbrokered		OS system administrator	Same as the command execution privileges	No authentication
Managing message brokers - imqcmd		OS system administrator	-	No authentication
Managing/deleting message brokers - Windows32/64 imqsvcadm		OS system administrator	-	No authentication
Managing information about users that can connect to the message provider - imqusermgr		OS system administrator	-	No authentication
Generating resources required in the JAX-WS service from the WSDL file - ijwsimport		General user	-	No authentication
Performing Java EE Admin Console operations		-	Service operator user	User specified in the login window

*1 Some of the Interstage operator group user and general user operations described can also be performed by the OS system administrator.

*2 Specify the user that is authenticated when the asadmin command is executed. Note that, in the OS realm of the initial setting, the system will not request login authentication when the command is executed for DAS in the same machine. For details, refer to "5.1.6.2 Login Authentication for the asadmin Command".

5.1.5 Registering the Administrator User

This section explains how to register the administrator user used for login authentication.

When the information registered for the administrator user is updated, we must also update the administrator user specified when the asadmin command/Interstage Java EE Admin Console are authenticated and the Interstage Java EE DAS service/Interstage Java EE Node Agent service are started. For details on how to specify this information, refer to "5.1.6 Specifying the Administrator User".

5.1.5.1 Realm for Login Authentication

In this product, admin-realm is registered as the system-integrated realm.

admin-realm is a dedicated realm that is used in login authentication for the asadmin command/Interstage Java EE Admin Console.

The following three realms can be selected as the admin-realm:

- OS realm
- file realm
- ldap realm

The table below displays the admin-realm default settings at the time of the installation or when the ijinit initialization command (for details, refer to "ijinit" in the "Java EE Operation Commands" chapter) is executed (admin-realm cannot be deleted):

Realm type	User name	Password	Group name
OS realm	None. (*1)	None. (*1)	asadmin

*1 Since the user and password registered in the OS are used, there are no default values.



The asadmin group

If the user does not belong to the asadmin group, login authentication will fail. Hence, the asadmin group must be included in the login user group.

5.1.5.2 Changing the Realm Type

The following methods can be selected to change the realm type for the admin-realm:

- Interstage Java EE Admin Console (for details, refer to the Interstage Java EE Admin Console Help)
- The set subcommand (for details, refer to "set Subcommand" in the "Java EE Operation Commands" chapter).



- When changing the realm type, update all settings below using identical content, otherwise later operations might fail.
 - Interstage Java EE DAS service
 - Interstage Java EE Node Agent service
 - All prebuilt IJServer clusters
 - IJServer default settings
- When the realm type is changed, update the asadminenv.conf file by changing the realm type used by the asadmin command.
- If the OS realm was changed to the file realm or ldap realm, execute the following procedure after the setting was changed:
 1. Stop the Interstage Java EE DAS service.
 2. Update the asadminenv.conf file by changing the realm type used by the asadmin command.
 3. Execute the asadmin command change-service-adminuser subcommand to set the service admin user and password.
 4. Start the Interstage Java EE DAS service.

5.1.5.3 OS Realm Settings

To edit the administrator user, follow the procedure below.

Using the Interstage Java EE Admin Console

1. Using Interstage Java EE Admin Console, log in to the Interstage Java EE Admin Console
2. Click [Settings]>[server-config]>[Security]>[Realm]>[admin-realm]
3. Configure the settings.

Note

The realm types and settings must be identical for all Java EE services and IJServer clusters, otherwise later operations might fail. After setting, the content must also be reflected in the window displayed after clicking the following:

- [Settings]>[default-config]>[Security]>[Realm]>[admin-realm]
- [Settings]>[<cluster-name>-config]>[Security]>[Realm]>[admin-realm]
- [Node agent]>[ijna]>[Authorization Realm]

Note

Only the class name, JAAS context, and group assignment should be changed. Do not change any other values.

Setting name	Value that is specified
Class name	com.fujitsu.interstage.javaee.security.auth.realm.os.OSRealm
JAAS context	osRealm
Group assignment	asadmin

4. The settings will be reflected the next time there is a login to the Interstage Java EE Admin Console.

Using the set Subcommand

1. Create the file displayed below.

Example of the configuration file:

```
server-config.security-service.auth-realm.admin-realm.classname=com.fujitsu.interstage.javaee.security.auth.realm.os.OSRealm
server-config.security-service.auth-realm.admin-realm.property.jaas-context=osRealm
server-config.security-service.auth-realm.admin-realm.property.assign-groups=asadmin
default-config.security-service.auth-realm.admin-realm.classname=com.fujitsu.interstage.javaee.security.auth.realm.os.OSRealm
default-config.security-service.auth-realm.admin-realm.property.jaas-context=osRealm
default-config.security-service.auth-realm.admin-realm.property.assign-groups=asadmin
testcluster-config.security-service.auth-realm.admin-
realm.classname=com.fujitsu.interstage.javaee.security.auth.realm.os.OSRealm
testcluster-config.security-service.auth-realm.admin-realm.property.jaas-context=osRealm
testcluster-config.security-service.auth-realm.admin-realm.property.assign-groups=asadmin
node-agent.ijna.auth-realm.classname=com.fujitsu.interstage.javaee.security.auth.realm.os.OSRealm
node-agent.ijna.auth-realm.property.jaas-context=osRealm
node-agent.ijna.auth-realm.property.assign-groups=asadmin
```

"testcluster" is the name of the IJServer cluster created.

2. Issue the asadmin command set subcommand, and in the -file option specify the file created in the previous step (for details, refer to "set Subcommand" in the "Java EE Operation Commands" chapter).

Note

Change all the settings at once when using the set subcommand.

5.1.5.4 File Realm Settings

To edit the administrator user, follow the procedure below. For details on the file realm, refer to "5.3.6 File Realm Settings" under "5.3 Method of Operation Using the Security Functionality" section.

Using the Interstage Java EE Admin Console

1. Using Interstage Java EE Admin Console, log in to the Interstage Java EE Admin Console
2. Click [Settings]>[server-config]>[Security]>[Realm]>[admin-realm],
3. Configure the settings.

Note

The realm types and settings must be identical for all Java EE services and IJServer clusters, otherwise later operations might fail. After setting, the content must also be reflected in the window displayed after clicking the following:

- [Settings]>[default-config]>[Security]>[Realm]>[admin-realm]
- [Settings]>[<cluster-name>-config]>[Security]>[Realm]>[admin-realm]
- [Node agent]>[ijna]>[Authorization Realm]

Note

Only the class name, JAAS context, and key file should be changed. Do not change any other values.

Setting name	Value that is specified
Class name	com.sun.enterprise.security.auth.realm.file.FileRealm
JAAS context	fileRealm
Key file	\${com.sun.aas.instanceRoot}/config/admin-keyfile

4. Click the [Manage Users] button to add/update/delete the user/group.

Note

Perform the operations using the window displayed by clicking [Settings]>[server-config]>[Security]>[Realm]>[admin-realm].

5. The settings will be reflected the next time there is a login to the Interstage Java EE Admin Console.

Using the set Subcommand

1. Create the file displayed below.

Example of the configuration file:

```
server-config.security-service.auth-realm.admin-realm.classname=com.sun.enterprise.security.auth.realm.file.FileRealm
server-config.security-service.auth-realm.admin-realm.property.jaas-context=fileRealm
server-config.security-service.auth-realm.admin-realm.property.file=${com.sun.aas.instanceRoot}/config/admin-keyfile
default-config.security-service.auth-realm.admin-realm.classname=com.sun.enterprise.security.auth.realm.file.FileRealm
default-config.security-service.auth-realm.admin-realm.property.jaas-context=fileRealm
default-config.security-service.auth-realm.admin-realm.property.file=${com.sun.aas.instanceRoot}/config/admin-keyfile
testcluster-config.security-service.auth-realm.admin-realm.classname=com.sun.enterprise.security.auth.realm.file.FileRealm
testcluster-config.security-service.auth-realm.admin-realm.property.jaas-context=fileRealm
testcluster-config.security-service.auth-realm.admin-realm.property.file=${com.sun.aas.instanceRoot}/config/admin-keyfile
node-agent.ijna.auth-realm.classname=com.sun.enterprise.security.auth.realm.file.FileRealm
```

```
node-agent.ijna.auth-realm.property.jaas-context=fileRealm
node-agent.ijna.auth-realm.property.file=${com.sun.aas.instanceRoot}/config/admin-keyfile
```

"testcluster" is the name of the IJServer cluster created.

2. Issue the `asadmin` command `set` subcommand, and in the `-file` option specify the file created in the previous step (for details, refer to "set Subcommand" in the "Java EE Operation Commands" chapter).

Note

Change all the settings at once when using the `set` subcommand.

3. Execute the following subcommands to create/delete/update/list file realm users or list file realm groups (for details, refer to "Subcommands - Category: Security" in the "Java EE Operation Commands" chapter):
 - `create-file-user` (for details, refer to "create-file-user Subcommand")
 - `delete-file-user` (for details, refer to "delete-file-user Subcommand")
 - `update-file-user` (for details, refer to "update-file-user Subcommand")
 - `list-file-users` (for details, refer to "list-file-users Subcommand")
 - `list-file-groups` (for details, refer to "list-file-groups Subcommand")

Note

- When administrator users are managed using the above subcommands, specify "admin-realm" for the `--authrealmname` option.
- When administrator users are managed using the above subcommands, specify "server" for the target.

Note

The `assign-groups`

When the `asadmin` group is specified for the `assign-groups`, the `asadmin` group will be assigned for all admin-realm users by force. This should only be specified to allow login to the Java EE environment for all users managed in admin-realm.

Note

Notes on creating the user account

- Password
 - We recommend using 8 to 20 characters.
- Deleting users
 - Regardless of whether the `asadmin` group is specified for the `assign-groups` (assignment of the group), at least one user belonging to the `asadmin` group of the group list must be registered in admin-realm. If an attempt is made to delete the final user, an error occurs.

Changing the Administrator User Password after Login

When the file realm is used in admin-realm, the administrator user password after login can be changed using the Interstage Java EE Admin Console or the `asadmin` command.

Using the `asadmin` Command

Use the `asadmin` command `change-admin-password` subcommand (for details, refer to "change-admin-password Subcommand" in the "Java EE Operation Commands" chapter).

Using Interstage Java EE Admin Console

Log in to the Interstage Java EE Admin Console, click [Domain]>[Administrator Password], then set the following items:

- New Password
- Confirm New Password

5.1.5.5 Idap Realm Settings

To edit the administrator user follow the procedure below. For details on the Idap realm, refer to "[5.3.5 Idap Realm Settings](#)".

1. Adding the User/group to Interstage Directory Service

Note

If the login restriction based on the group in Directory Service is required, the asadmin group must be registered and the user must belong to this group.

2. Setting admin-realm

Using Interstage Java EE Admin Console

1. Log in to the Interstage Java EE Admin Console
2. Click [Settings]>[server-config]>[Security]>[Realm]>[admin-realm].
3. Configure the settings:

Note

The realm types and settings must be identical for all Java EE services and IJServer clusters, otherwise later operations might fail.

After setting, the content must also be reflected in the window displayed after clicking the following:

- [Settings]>[default-config]>[Security]>[Realm]>[admin-realm]
- [Settings]>[<cluster-name>-config]>[Security]>[Realm]>[admin-realm]
- [Node agent]>[ijna]>[Authorization Realm]

Note

Only the class name and JAAS context should be changed. Do not change any other values.

Setting name	Value that is specified
Class name	com.sun.enterprise.security.auth.realm.ldap.LDAPRealm
JAAS context	ldapRealm

4. The settings will be reflected the next time there is a login to the Interstage Java EE Admin Console.

Using the set Subcommand

1. Create the file displayed below.

Example of the configuration file

```
server-config.security-service.auth-realm.admin-  
realm.classname=com.sun.enterprise.security.auth.realm.ldap.LDAPRealm  
server-config.security-service.auth-realm.admin-realm.property.jaas-context=ldapRealm  
server-config.security-service.auth-realm.admin-realm.property.directory=ldap://localhost:389
```

```

server-config.security-service.auth-realm.admin-realm.property.base-dn=ou=interstage,o=fujitsu,dc=com
server-config.security-service.auth-realm.admin-realm.property.search-filter=uid=%s
server-config.security-service.auth-realm.admin-realm.property.group-search-filter=member=%d
server-config.security-service.auth-realm.admin-realm.property.group-base-dn=ou=Group,ou=interstage,o=fujitsu,dc=com
server-config.security-service.auth-realm.admin-realm.property.group-target=CN
default-config.security-service.auth-realm.admin-
realm.classname=com.sun.enterprise.security.auth.realm.LdapLDAPRealm
default-config.security-service.auth-realm.admin-realm.property.jaas-context=LdapRealm
default-config.security-service.auth-realm.admin-realm.property.directory=ldap://localhost:389
default-config.security-service.auth-realm.admin-realm.property.base-dn=ou=interstage,o=fujitsu,dc=com
default-config.security-service.auth-realm.admin-realm.property.search-filter=uid=%s
default-config.security-service.auth-realm.admin-realm.property.group-search-filter=member=%d
default-config.security-service.auth-realm.admin-realm.property.group-base-
dn=ou=Group,ou=interstage,o=fujitsu,dc=com
default-config.security-service.auth-realm.admin-realm.property.group-target=CN
testcluster-config.security-service.auth-realm.admin-
realm.classname=com.sun.enterprise.security.auth.realm.LdapLDAPRealm
testcluster-config.security-service.auth-realm.admin-realm.property.jaas-context=LdapRealm
testcluster-config.security-service.auth-realm.admin-realm.property.directory=ldap://localhost:389
testcluster-config.security-service.auth-realm.admin-realm.property.base-dn=ou=interstage,o=fujitsu,dc=com
testcluster-config.security-service.auth-realm.admin-realm.property.search-filter=uid=%s
testcluster-config.security-service.auth-realm.admin-realm.property.group-search-filter=member=%d
testcluster-config.security-service.auth-realm.admin-realm.property.group-base-
dn=ou=Group,ou=interstage,o=fujitsu,dc=com
testcluster-config.security-service.auth-realm.admin-realm.property.group-target=CN
node-agent.ijna.auth-realm.classname=com.sun.enterprise.security.auth.realm.LdapLDAPRealm
node-agent.ijna.auth-realm.property.jaas-context=LdapRealm
node-agent.ijna.auth-realm.property.directory=ldap://localhost:389
node-agent.ijna.auth-realm.property.base-dn=ou=interstage,o=fujitsu,dc=com
node-agent.ijna.auth-realm.property.search-filter=uid=%s
node-agent.ijna.auth-realm.property.group-search-filter=member=%d
node-agent.ijna.auth-realm.property.group-base-dn=ou=Group,ou=interstage,o=fujitsu,dc=com
node-agent.ijna.auth-realm.property.group-target=CN

```

"testcluster" is the name of the JServer cluster created

2. Issue the `asadmin` command set subcommand, and in the `-file` option specify the file created in the previous step (for details, refer to "set Subcommand" in the "Java EE Operation Commands" chapter).

Note

Change all the settings at once when using the `set` subcommand.

Note

The `assign-groups`

When the `asadmin` group is specified for the `assign-groups`, the `asadmin` group will be assigned for all users return by the query to Interstage Directory Service by force.

It is recommended that this is specified only if there is no need for the login restriction based on the group in Directory Service.

Note

Automatic startup of a service

When the `Ldap` realm is used in `admin-realm`, authentication that uses Interstage Directory Service is performed when the Interstage Java EE DAS service and the Interstage Java EE Node Agent service are started.

If the Java EE service starts before Interstage Directory Service when the system starts, the service startup will fail. For this reason, when the system starts the Interstage Java EE DAS service and the Interstage Java EE Node Agent service must be started manually, and not allowed to start up automatically, after the startup of Interstage Directory Service is complete.

For details on the service automatic startup settings, refer to "4.2 Operations Using Commands" in the "Java EE Application Operation" chapter.

5.1.5.6 Notes on Updating Admin-realm and Administrator User Information

Restarting the Interstage Java EE DAS Service and the Interstage Java EE Node Agent Service

If the admin-realm setting was changed, then restart the Interstage Java EE DAS service and the Interstage Java EE Node Agent service.

Reimplementing the login Subcommand and the change-service-adminuser Subcommand

Even if the administrator user information is changed by any of the following operations, it will not be reflected in the ".asadminpass" file that is generated/updated using the login subcommand, nor in the service administrator user information that is set.

- An increase or decrease in the number of administrator users or a change to a password occurred when the realm type used as admin-realm was switched.
- An administrator user was deleted, the group they belong to was changed, or the password was updated.

Execute the login subcommand again if necessary.

The service administrator user information must be reset using the asadmin command change-service-adminuser subcommand if any of the following applies:

- The user set as the service administrator user was deleted.
- The user set as the service administrator user does not belong to the asadmin group any more.
- The service administrator user password was changed.
- The admin-realm setting was changed.

Then, restart the Interstage Java EE DAS service and the Interstage Java EE Node Agent service.

If this is not reset or restart, it will not be possible to start or reference the Interstage Java EE DAS service /Interstage Java EE Node Agent service.

Long Passwords

If the password length either shorter than 8 characters or longer than 20 characters, then the following may occur:

- 

When the password is entered at the time of the asadmin command execution, the password input will be cut off.

In this case, specify a password with the allowed size range.

Even though it may be possible to set a long password, depending on the password settings method, the password input from the command line and login may still not be possible.

When the file realm is used as admin-realm, log in using the Java EE Admin Console and change the password so that it is within the recommended size range, as follows:

- [Domain]>[Administrator Password]

When the ldap realm is used, use the Interstage Directory Service Entry Management Tool to change the password so that it is within the recommended size range.

When the OS realm is used, use the OS user admin tools to change the password so that it is within the recommended value range of 8 to 20 characters.

When the Administrator User ID Starts with "-"

When the administrator user ID is specified in the `asadmin` command and a user name starting with "-" is specified, a message is displayed alerting to the fact that either an option value has not been specified or that the option is illegal, and the execution of the command may fail.

Example

```
asadmin change-admin-password --user -a
```

```
->ISJEE_CLI011 message is output
```

In this case, specify the value for the option starting with "=".

Example

```
asadmin change-admin-password --user=-a
```

Valid Characters in the Administrator User ID and Administrator Password

Create an administrator user ID between 1 and 255 characters long, comprised of:

- Alphanumeric characters
- Underscores ("_")
- Dashes ("-")
- Dot characters (".")

Multibyte characters, spaces, and control code cannot be used in the administrator password.

For details on the recommended values for the password, refer to "Notes on the Java EE Password" in the "Release Information" chapter.

If characters not shown above are used, authentication processing or the operation might fail.

If the ldap realm and the OS realm have been used, also check the Interstage Directory Service and OS specifications if necessary.

5.1.6 Specifying the Administrator User

This section explains how to specify the admin user that will be used in login authentication.

The admin user types are as follows:

Type	Description
Administrator user	User specified at login authentication for the <code>asadmin</code> command/Interstage Java EE Admin Console.
Service administrator user	Administrator user automatically used for authentication when the Interstage Java EE DAS service / Interstage Java EE Node Agent service starts up.

5.1.6.1 Login Authentication when the Interstage Java EE DAS Service /Interstage Java EE Node Agent Service Starts Up

If the file realm or the ldap realm has been used, the service administrator user ID and password are used for authentication automatically when the Interstage Java EE DAS service /Interstage Java EE Node Agent service starts up.

The service administrator user ID and password can be changed/displayed according to the procedures below.

Change/update

- To change/update the administrator user ID and password, execute the `change-service-adminuser` subcommand (for details, refer to "change-service-adminuser Subcommand" in the "Java EE Operation Commands" chapter).

Display

- To display the administrator user ID and password, execute the show-service-adminuser subcommand (for details, refer to "show-service-adminuser Subcommand" in the "Java EE Operation Commands" chapter).



Managing service administrator users

When the ldap realm is used, start Interstage Directory Service before starting the Interstage Java EE DAS service /Interstage Java EE Node Agent service. If the connection to Interstage Directory Service or login authentication fails, the Interstage Java EE DAS service / Interstage Java EE Node Agent service will fail to start.

5.1.6.2 Login Authentication for the asadmin Command

Login authentication can be performed via the asadmin command login subcommand, input at the command prompt, or executing the login subcommand and using the administrator user ID and password that were registered in advance in the file.

The administrator user ID/password used for authentication are selected according to the following priority:

OS Realm

Administrator User IDs

1. User name specified for the asadmin command user option.
2. User name specified in the asadmin command login subcommand (described in the .asadminpass file).
3. User name specified at the command prompt.

Administrator Passwords

1. AS_ADMIN_PASSWORD described in the file specified for the asadmin command passwordfile option.
2. Password specified in the asadmin command login subcommand (described in the .asadminpass file).
3. Password specified at the command prompt. (*1)

*1 If the connection is to DAS in a local machine, and 1 and 2 were not specified, a password does not need to be entered.

File Realm/ldap Realm

Administrator User IDs

1. User name specified for the asadmin command user option.
2. User name specified in the asadmin command login subcommand (described in the .asadminpass file).
3. User name specified at the command prompt.

Administrator Passwords

1. AS_ADMIN_PASSWORD described in the file specified for the asadmin command passwordfile option.
2. Password specified in the asadmin command login subcommand (described in the .asadminpass file).
3. Password specified at the command prompt.



Notes on using the .asadminpass file

The .asadminpass file is created in the user home directory when the asadmin command login subcommand is executed. If you want to omit the administrator user ID/password used for authentication at the time of the operation, the administrator user ID/password described in the .asadminpass file can be used as the default values.

Once the file has been created, however, continued disabling of authentication will cause deterioration in security. For this reason, it is recommended that you do not use it for operations if you want to enhance the security level.

When managing administrator user accounts that are managed in the file realm, and the change-admin-password subcommand is executed and the password changed, the .asadminpass file in the home directory of the user that was executed is also updated at the same time.

5.2 Java EE Application Security Functionality

The functionality for preventing illegal access to Java EE application resources is explained below.

5.2.1 Authentication

Authentication is a type of functionality for checking whether the user is valid according to a user ID and password. Accordingly, access by invalid users can be prevented.

The following authentication methods are provided.

- [Servlet Authentication](#)
- [Java EE Application Client Authentication](#)

Servlet Authentication

In Servlet, authentication of the client that connects to the Web container can be performed using the following authentication methods.

- BASIC authentication
- FORM authentication

For details on the settings method, refer to "[3.2.2.2 Web Application Deployment Descriptor \(web.xml\)](#)" in the "Java EE Application Development" chapter.

When Authentication Fails

The following messages are output to the server log, and the status codes 401 (for BASIC authentication) and 200 (for FORM authentication) are returned.

- SEC5046
- WEBSEC00001

Java EE Application Client Authentication

Since IIOP is used for communication from the Java EE application client to the EJB, the authentication information must be specified in the client when enabling the IIOP client authentication settings in the ORB settings of the server to be connected to. Additionally, when HTTP Basic authentication has been set in the Web service that is called, the HTTP Basic authentication information must be set in the request from the Web service client.

If authentication is deemed to be required in the server to be connected, the security callback handler is executed. Any security callback handler can be specified in the deployment descriptor file (application-client.xml). If a security callback handler is not specified, the default security callback handler is executed. In the explanation below, the security callback handler is implemented when the default security callback handler is operated.

The security callback handler is not executed when Heartbeat is enabled in the IJServer cluster settings, however. For this reason, disable Heartbeat to use IIOP authentication.

Default Security Callback Handler

The default security callback handler runs as follows:

1. When the appclient command -user option and -password option are specified, authentication is performed using the user name and password specified in each option.
2. When the appclient command -textauth option is specified, a message asking the user to enter a user name and password is output to the Console, and authentication is performed using the information that was entered.
3. If the option in 1. or 2. is not specified, a dialog box is displayed and the user name and password are requested.

Implementation of the Security Callback Handler

When the JAAS callback handler is implemented in the Java EE application client, custom functionality such as the display of a login window for obtaining the required credentials can be provided. In this type of case, the callback handler is instantiated by the container when it starts up, and the default security callback handler is ignored.

To implement the custom security callback handler, perform the following:

1. Implement the `javax.security.auth.callback.CallbackHandler` interface to create a class that has a constructor that does not have an argument (or a class that does not define a constructor).
2. Add the callback handler class to the application client JAR file, or set the callback handler class in the `APPCPATH` environment variable.
3. Add the handler class reference to the `application-client.xml` file. An example is as follows:

Example

```
<application-client>
  <callback-handler>
    com.cart.MyCallbackHandler
  </callback-handler>
</application-client>
```

Note

If the specified class cannot load, or the custom security callback handler class contains an error (for example, a constructor that has an argument is defined), the default security callback handler is executed.

5.2.2 Authorization

The operations that can be performed by an authenticated user can be restricted according to an authorization level. The authorization level is based on the user role. For example, in member control applications, the administrator is authorized to see the personal information about all members, and members are only authorized to see their own personal information.

There are two methods to perform authorization: control using a program, and control using the deployment descriptor

Control using a program

A code that is used to perform authorization according to authenticated users and roles using the Servlet/EJB API can be described in the application.

The application cannot be modified after it has been developed, therefore the application will need to be modified depending on the operating environment.

For details on the Servlet/EJB API, refer to the Servlet 2.5/EJB 3.0 specifications.

Control using the deployment descriptor

The container performs authorization according to the contents that were described in the deployment descriptor.

The deployment descriptor can be modified according to the operating environment after the application has been developed, therefore there is normally no need to modify the application.

The following are restricted from the deployment descriptor.

- Web application resources
- EJB application methods

For details on definitions, refer to the Java EE 5/Servlet 2.5/EJB 3.0 specifications.

When Authorization Fails

When authorization for the Web application resources fails

When authorization fails, Status Code:403 is returned.

When authorization of the EJB application method fails

When authorization fails, the following exception is notified to the client depending on the interface type that was accessed.

Route interface	Exception that is notified
Business interface	javax.ejb.EJBException
The Remote Business interface that inherits java.rmi.Remote	java.rmi.AccessException
Local Business interface	javax.ejb.AccessLocalException
Remote interface(EJB2.1 client view)	java.rmi.AccessException
Local interface(EJB2.1 client view)	javax.ejb.AccessLocalException

5.2.3 SSL

5.2.3.1 Communication that can Use SSL

In this product, the following types of communication can be performed using SSL.

- [Communication between the Web Browser and the Web Server](#)
- [Communication between the Web browser and the Interstage Java EE Admin Console](#)
- [Communication between the Web Server Connector and the Web Container](#)
- [Communication when the Web Application is the SSL Client](#)
- [Communication when the Web Application is the SSL Server](#)
- [Communication between the Web Service Client and the Web Server](#)

Communication between the Web Browser and the Web Server

For details on the settings method, refer to the Interstage HTTP Server Operator's Guide.

Communication between the Web browser and the Interstage Java EE Admin Console

The certificate that will be used in the SSL encrypted communication of the Interstage Java EE Admin Console is self-issued at the time of the installation. (Nickname: slas)

The content of the self-issued certificate is as follows:

Issuer name/owner name	CN = host name
Validity term expiry	30 years from date of installation

To enhance security, switch to operations that use a certificate that was obtained from the CA.

- Keystore settings that are configured when the certificate that was obtained from the CA is used

For details, refer to "[5.2.3.2 Keystore Settings](#)".

- Changing the SSL definition of the Interstage Java EE Admin Console

In the HTTP listener "admin-listener" - "SSL" tab of server-config, set the nickname for the certificate in "certificate nickname".

Communication between the Web Server Connector and the Web Container

When the Web server is run on a DMZ (DeMilitarized Zone) machine and the IJServer cluster is run on a cross-Firewall intranet, risks such as surveillance/falsification/identity theft can be avoided, and information privacy maintained by the use of SSL communication between the Web server connector and the Web container.

SSL communication between the Web server connector and the Web container is used in the following cases:

- SSL communication between the Web browser and the Web server
- When the Web server and the WorkUnit are not run on the same machine

The following settings must be configured to perform communication between the Web server connector and the Web container using SSL.

Keystore settings

For details on the keystore settings, refer to "[5.2.3.2 Keystore Settings](#)".

Web server connector

Use the following procedure to configure the Web server connector:

1. Generate the test site certificate in the Interstage certificate environment.
2. Use the Interstage Management Console or the `isj2eadmin` command to generate the SSL definition based on the test site certificate.
3. Use the Interstage Management Console or the `isj2eadmin` command to generate the Web server connector that will communicate with the IJServer cluster, and set "Use SSL for communication between the connector and the Web container".
4. Register the CA certificate that was used in "Keystore Settings", the intermediate CA certificate (if required), and the server certificate that was obtained from the CA in the Interstage certificate environment.

IJServer cluster

The HTTP listener security function is enabled using the Interstage Java EE Admin Console or the `asadmin` command set subcommand.

For details on the settings method, refer to the Interstage Java EE Admin Console Help and "Subcommands - Category: Referencing/Updating Definition Items" and "Security" Item name of "Definition Items of the `configs.config.http-service`", both in the "Java EE Operation Commands" chapter.

The use of SSL between the connector and the Web container must be set using the Interstage Java EE Admin Console Java EE or the `asadmin` command `create-ssl` subcommand.

For details on the settings method, refer to the Interstage Java EE Admin Console Help.



Note

Notes about communication between the Web server connector and the Web container

The following protocol versions and encryption methods are supported in the IJServer cluster.

- Protocol version
 - SSL 3.0
 - TLS 1.0
- Encryption method
 - TLS_RSA_WITH_AES_128_CBC_SHA
 - SSL_RSA_WITH_3DES_EDE_CBC_SHA
 - SSL_RSA_WITH_RC4_128_SHA
 - SSL_RSA_WITH_RC4_128_MD5
 - SSL_RSA_WITH_DES_CBC_SHA
 - SSL_RSA_EXPORT_WITH_RC4_40_MD5
 - SSL_RSA_WITH_NULL_SHA
 - SSL_RSA_WITH_NULL_MD5

Communication when the Web Application is the SSL Client

Register the certificate that will be used for communication with the server in the keystore/truststore that will be used by the IJServer cluster.

1. When the client certificate is not used

Register the certificate that will be used for communication with the server (CA certificate and, if required, intermediate CA certificate) in the truststore that will be used by the IJServer using an alias. This alias can be anything.

2. When the client certificate is used

Register the certificate that will be used for client certification (CA certificate, intermediate CA certificate (if required), and server certificate) in the keystore that will be used by the IJServer using an alias. This alias can be anything. For details, refer to "[5.2.3.2 Keystore Settings](#)".

An "alias" is a name that identifies an entry (key and trusted certificate) in the keystore.

The procedure below shows how to configure a certificate in the truststore. The command in the example uses JDK6.

- Register the certificate in the truststore.

When the alias is root_ca, the truststore file name is cacerts.jks, and the CA certificate file name is root_ca.cer

```
keytool -import -alias root_ca -keystore cacerts.jks -file root_ca.cer
```

- Using the Interstage Java EE Admin Console or asadmin command, set the following as JVM options:

```
-Djavax.net.ssl.keyStore=Name of the keystore file, specified using the full path  
-Djavax.net.ssl.trustStore=Name of the truststore file, specified using the full path  
-Djavax.net.ssl.keyStorePassword=keystore password  
-Djavax.net.ssl.trustStorePassword=truststore password
```



Note

When using communication when the Web application is the SSL client, do not use the default definition keystore and truststore.

If the keystore and truststore were placed in a location other than the default location, they will not be targets of the backup command. Back these up manually.

Communication when the Web Application is the SSL Server

When communicating using the servlet application as the server, use the keystore/truststore that will be used by the IJServer cluster.

Communication between the Web Service Client and the Web Server

In the Web service client, when the Web service endpoint URL is specified as "https", the Web service that has been made secure using SSL according to the JSSE(Secure Socket Extension) settings is called. The certificate that is used can be specified in the keystore/truststore settings.

Configure the keystore/truststore settings for the container that executes the Web service client. For details on the keystore/truststore settings, refer to "[Setting a Keystore that is Used as the Application Client Container](#)" or "[5.2.3.2 Keystore Settings](#)" for the container that executes the Web service client.

The settings in the Web service are configured for the Web server, in the same way as the settings for the Web application. For details, refer to "[Communication between the Web Browser and the Web Server](#)". For details on the Web service endpoint URL, refer to "[3.1.2 Developing Web Service Applications](#)" in the "Java EE Application Development" chapter.

5.2.3.2 Keystore Settings

The keystore that was created using the JDK keytool command is used as the keystore. For details on the JDK keytool command, refer to the JDK information.

- [When a Certificate Issued by the CA is Used](#)

- [When a Self-issued Certificate \(s1as\) is Reissued](#)
- [Setting a Keystore that is Used as the Application Client Container](#)

When a Certificate Issued by the CA is Used

The procedure below shows how to use a certificate that was issued by the CA. The command in the example uses JDK6.

1. To use an existing alias, delete the corresponding certificate that was registered in the keystore.

When the alias is newcert, and the keystore file name is keystore.jks

```
keytool -delete -alias newcert -keystore keystore.jks
```

2. Generate a new public/private key pair for the keystore using any alias.

When the algorithm is RSA, the alias is newcert, the keystore file name is keystore.jks, and the validity term is 365 days

```
keytool -genkeypair -keyalg RSA -keystore keystore.jks -validity 365 -alias newcert
```

3. Generate the certificate signing request (CSR) in the keystore.

When the alias is newcert, the keystore file name is keystore.jks, and the certificate signing request file name is newcert.csr

```
keytool -certreq -alias newcert -file newcert.csr -keystore keystore.jks
```

4. Make the request to the CA to sign the server certificate.

5. Register the CA certificate and (if required) intermediate CA certificate in the keystore.

When the alias is ca, the keystore file name is keystore.jks, and the CA certificate file name is ca.cer

```
keytool -import -alias ca -keystore keystore.jks -trustcacerts -file ca.cer
..
```

6. Register the server certificate that was obtained in the keystore.

When the alias is newcert, the keystore file name is keystore.jks, and the server certificate file name is myserver.cer

```
keytool -import -alias newcert -keystore keystore.jks -trustcacerts -file myserver.cer
```

7. Using the Interstage Java EE Admin Console or asadmin command, set the following as JVM options:

- Djavax.net.ssl.keyStore=Name of the keystore file, specified using the full path
- Djavax.net.ssl.trustStore=Name of the truststore file, specified using the full path
- Djavax.net.ssl.keyStorePassword=keystore password
- Djavax.net.ssl.trustStorePassword=truststore password



Note

When using a certificate that was issued by the CA, do not use the default definition keystore and truststore.

If the keystore and truststore were placed in a location other than the default location, they will not be targets of the backup command. Back these up manually.

The default keystore and truststore are as follows:

Windows32/64

```
[Java EE common directory]\domains\interstage\config\keystore.jks
[Java EE common directory]\domains\interstage\config\cacerts.jks
```

Solaris32/64 Linux32/64

```
[Java EE common directory]/domains/interstage/config/keystore.jks
[Java EE common directory]/domains/interstage/config/cacerts.jks
```

When a Self-issued Certificate (s1as) is Reissued

The procedure below shows how to reissue a self-issued certificate (s1as). The command in the example uses JDK6.

1. Back up the Interstage Java EE DAS Service keystore file and truststore file.
2. Delete the self-issued certificate (s1as) that was registered in the Interstage Java EE DAS Service keystore.

```
keytool -delete -alias s1as -keystore keystore.jks
```

3. Generate a new public/private key pair for the Interstage Java EE DAS Service keystore using the s1as alias.

```
keytool -genkeypair -keyalg RSA -keystore keystore.jks -alias s1as -dname CN=host name -validity 10950
```

The Interstage Java EE DAS Service keystore/truststore password is "changeit".



Note

Do not change the DAS Service keystore, truststore and certificate passwords.

Setting a Keystore that is Used as the Application Client Container

A keystore that was created using the JDK key tool or an Interstage certificate environment can be used as the keystore.

When a client certificate is not used

Set the following in the VMARGS environment variable.

Windows32/64

```
set VMARGS=-Djavax.net.ssl.trustStore=truststore file name -Djavax.net.ssl.trustStorePassword=truststore password
```

Solaris32/64 Linux32/64

```
VMARGS="-Djavax.net.ssl.trustStore=truststore file name -Djavax.net.ssl.trustStorePassword=truststore password"  
export VMARGS
```

When a client certificate is not used

Set the following in the VMARGS environment variable.

Windows32/64

```
set VMARGS=-Djavax.net.ssl.keyStore=keystore file name -Djavax.net.ssl.trustStore=truststore file name -  
Djavax.net.ssl.keyStorePassword=keystore password -Djavax.net.ssl.trustStorePassword=truststore password
```

Solaris32/64 Linux32/64

```
VMARGS="-Djavax.net.ssl.keyStore=keystore file name -Djavax.net.ssl.trustStore=truststore file name -  
Djavax.net.ssl.keyStorePassword=keystore password -Djavax.net.ssl.trustStorePassword=truststore password"  
export VMARGS
```



Note

Notes about the keystore settings

- When the Interstage certificate environment is used, all registered CA certificates are used.
- For the keystore and truststore, set an access control for users or groups that can access from the IJServer cluster or application client container.
- When creating the keystore using the JDK keytool, set the password that is used for the private key as the keystore password.
- Do not use the preregistered self-certificate set in the keystore by default (s1as) in the actual application.

5.2.4 User/group/role

The user/group/role is explained below.

User

This is an ID that identifies an individual or an application program.

A user is mandatory to use Java EE security.

Group

This is a collection of users.

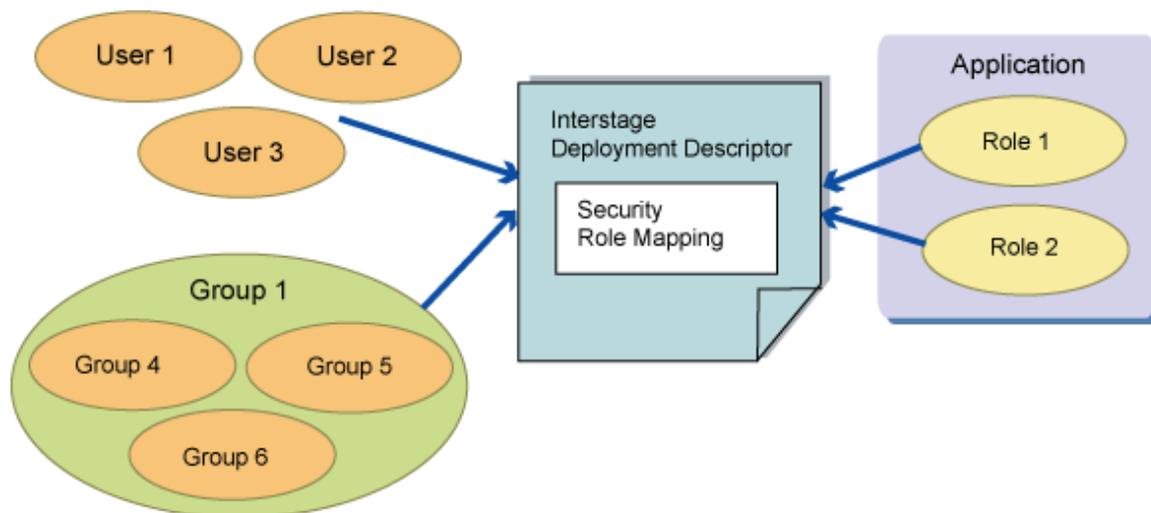
It is used to assign the same authorization level to members that belong to the personnel department, for example.

Role

This is an authorization level with a name that is defined by the application.

The application performs access restriction based on the role.

The user/group/role has the following relationship. By defining security role mapping in the Interstage deployment descriptor, the user/group are associated with the role that is defined by the application.



5.2.5 Realm

This is the range that is defined and applied for the security policy. Actually, "realm" means a repository that is used by the server to store user and group information.

The following realms can be used in this product:

- The file realm

This manages user credentials that are registered in the realm as a key file. For details on the registration of users in the file realm and the settings, refer to "[5.3.6 File Realm Settings](#)".

- The ldap realm

This obtains the user credentials from Interstage Directory Service. For details on managing the ldap realm users and groups, refer to "[5.3.5 ldap Realm Settings](#)".

Note

- The ldap realm only supports connections to the Interstage Directory Service.
- Use OS realm in user applications is not supported.

This product already contains realms. They are registered as "file" and "admin-realm".

"file" is set as the default realm. It can be used for "file" realm operations. "admin-realm" is a realm that manages the users that execute the Interstage Java EE Admin Console or the `asadmin` command.

To use a realm that was not registered initially, create the realm using the Interstage Java EE Admin Console or the `asadmin` command `create-auth-realm` subcommand. For details on the subcommands, refer to "Subcommands - Category: Security" in the "Java EE Operation Commands" chapter.

5.2.6 Requests for the Guarantee of Communication Data between the Client and the Web Server

Requests for the guarantee of communication data (between the client and the Web server) when a specific Web application resource is accessed are specified in the Web application deployment descriptor.

When `INTEGRAL` or `CONFIDENTIAL` is specified, communication using SSL is requested.

For details on the method to specify these, refer to "[3.2.2.2 Web Application Deployment Descriptor \(web.xml\)](#)" in the "Java EE Application Development" chapter.

When Access is Denied

When `INTEGRAL` or `CONFIDENTIAL` is specified, access to a resource that is protected by the client is denied when made from the Web container if SSL is not used.

If access is denied, 403 returned to the client.

5.2.7 Spreading Authentication Information to the EJB Container

The methods of spreading authentication information to the EJB container are as follows.

Authorization is performed using the role that is mapped to the authentication information that is spread to the EJB container.

Spreading client authentication information to the EJB container

Information authenticated in the client (Java EE application client, Web application) is spread to the EJB container.

Call specifying `RunAs`

The role can be specified in the `<run-as>` tag or `@RunAs` annotation of the call source deployment descriptor file.

In this case, the authentication information (group or user) that is mapped to the specified role is spread to the EJB container.

The mapping of the role and authentication information specified in `run-as` or the `@RunAs` annotation is defined in the Interstage deployment descriptor file. If this is not defined, the application deployment will fail.

Example of the Definition when `run-as` is Specified in Servlet

In the same way as for Web applications that are published on the internet, this is enabled when an EJB application to which access from Web applications that anybody can access is restricted is called.

The procedure is as follows.

1. Define `run-as` in the deployment descriptor (`web.xml`) file

The role (user) that runs Servlet is defined.

2. Define `security-role-mapping` in the Interstage deployment descriptor (`sun-web.xml`) file

The authentication information (`ejb-user1`) that is spread to the EJB container is defined for the Servlet role (user).

3. Define `security-role-mapping` in the Interstage deployment descriptor (`sun-ejb-jar.xml`) file

The role (admin) that runs EJB is defined for the authentication information (`ejb-user1`) that is spread from Servlet.

Servlet

deployment descriptor(`web.xml`)

```

<servlet>
  <servlet-name>cart</servlet-name>
  <servlet-class>com.fujitsu.interstage.sample.Cart</servlet-class>
  <run-as>
    <role-name>user</role-name>
  </run-as>
</servlet>

```

Interstage deployment descriptor(sun-web.xml)

```

<security-role-mapping>
  <role-name>user</role-name>
  <principal-name>ejb-user1</principal-name>
</security-role-mapping>

```

EJB

deployment descriptor(ejb-jar.xml)

```

<assembly-descriptor>
  <security-role>
    <role-name>ejb</role-name>
  </security-role>
  <method-permission>
    <role-name>admin</role-name>
    <method>
      <ejb-name>CartBean</ejb-name>
      <method-name>addItem</method-name>
      <method-params>
        <method-param>java.lang.String</method-param>
      </method-params>
    </method>
  </method-permission>
</assembly-descriptor>

```

Interstage deployment descriptor(sun-ejb-jar.xml)

```

<security-role-mapping>
  <role-name>admin</role-name>
  <principal-name>ejb-user1</principal-name>
</security-role-mapping>

```

Example of the Definition when run-as is Specified in EJB

This is enabled when an EJB application to which access from Message-driven Bean is restricted is called.

The procedure is as follows.

1. Define run-as in the deployment descriptor (ejb-jar.xml) file
The role (user) that runs EJB1 is defined.
2. Define security-role-mapping in the EJB1 Interstage deployment descriptor (sun-ejb-jar.xml) file
The authentication information (ejb-user1) that is spread to the EJB container is defined for the EJB1 role (user).
3. Define security-role-mapping in the EJB2 Interstage deployment descriptor (sun-ejb-jar.xml) file
The role (admin) that runs EJB is defined for the authentication information (ejb-user1) that is spread from EJB1.

EJB1

deployment descriptor(ejb-jar.xml)

```

<enterprise-beans>
  <security-identity>
    <run-as>

```

```
<role-name>user</role-name>
</run-as>
</security-identity>
</enterprise-beans>
```

Interstage deployment descriptor(sun-ejb-jar.xml)

```
<security-role-mapping>
  <role-name>user</role-name>
  <principal-name>ejb-user1</principal-name>
</security-role-mapping>
```

EJB2

deployment descriptor(ejb-jar.xml)

```
<assembly-descriptor>
  <security-role>
    <role-name>ejb</role-name>
  </security-role>
  <method-permission>
    <role-name>admin</role-name>
    <method>
      <ejb-name>CartBean</ejb-name>
      <method-name>addItem</method-name>
      <method-params>
        <method-param>java.lang.String</method-param>
      </method-params>
    </method>
  </method-permission>
</assembly-descriptor>
```

Interstage deployment descriptor(sun-ejb-jar.xml)

```
<security-role-mapping>
  <role-name>admin</role-name>
  <principal-name>ejb-user1</principal-name>
</security-role-mapping>
```



Note

Notes about Spreading Authentication Information to the EJB Container

- To call EJB on another machine, IIOP communication authentication, communication data integrity, and confidentiality must be set in the `ior-security-config` tag of `sun-ejb-jar.xml`.

For details on the method to set these, refer to "Interstage EJB Application deployment descriptor (sun-ejb-jar.xml)" in the "Java EE Application Development" chapter.

- When principal is defined more than once for one role in `security-role-mapping`, the authentication information that is spread to the EJB container must be specified according to the following methods.

- Servlet:

principal that is specified in the Interstage deployment descriptor (`sun-web.xml`) file is defined in the `principal-name` tag under the `servlet` tag.

- EJB:

principal that is specified in the Interstage deployment descriptor (`sun-ejb-jar.xml`) file is defined in the `principal` tag.

5.2.8 Security Manager

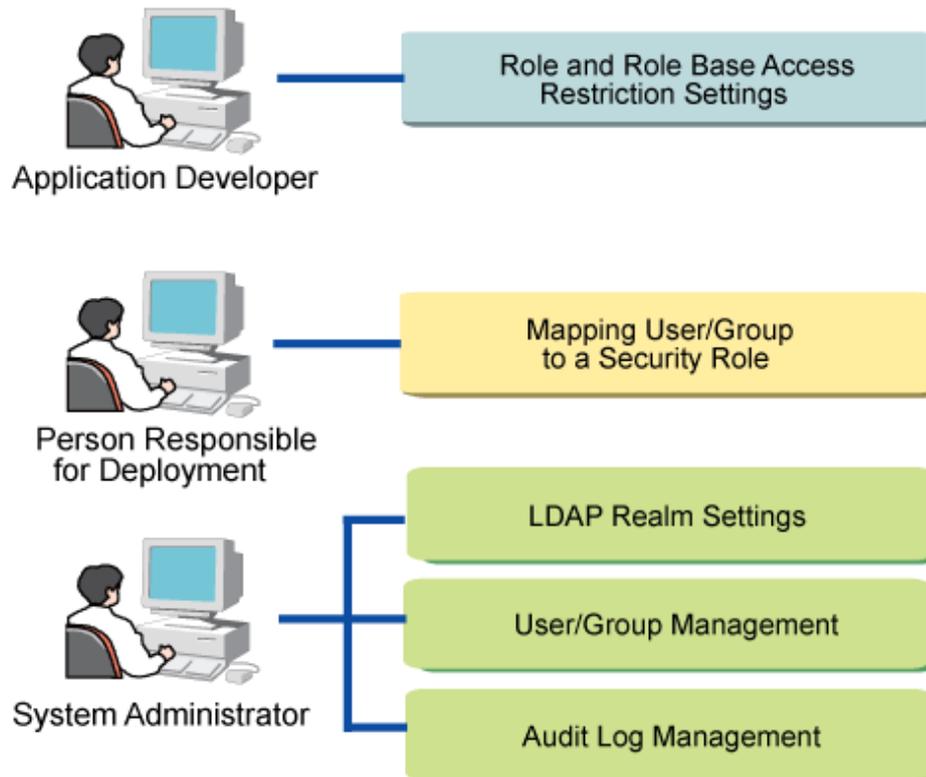
In the IJServer cluster, the IJServer cluster security can be enhanced by using Security Manager.

For details on Security Manager, refer to the Oracle website.

For details on how to run Security Manager in the IIServer cluster, refer to "[5.3.8 Security Manager Operations](#)".

5.3 Method of Operation Using the Security Functionality

Java EE security is performed by three users: the application developer, the person responsible for deployment, and the system administrator. Each person takes the following role.



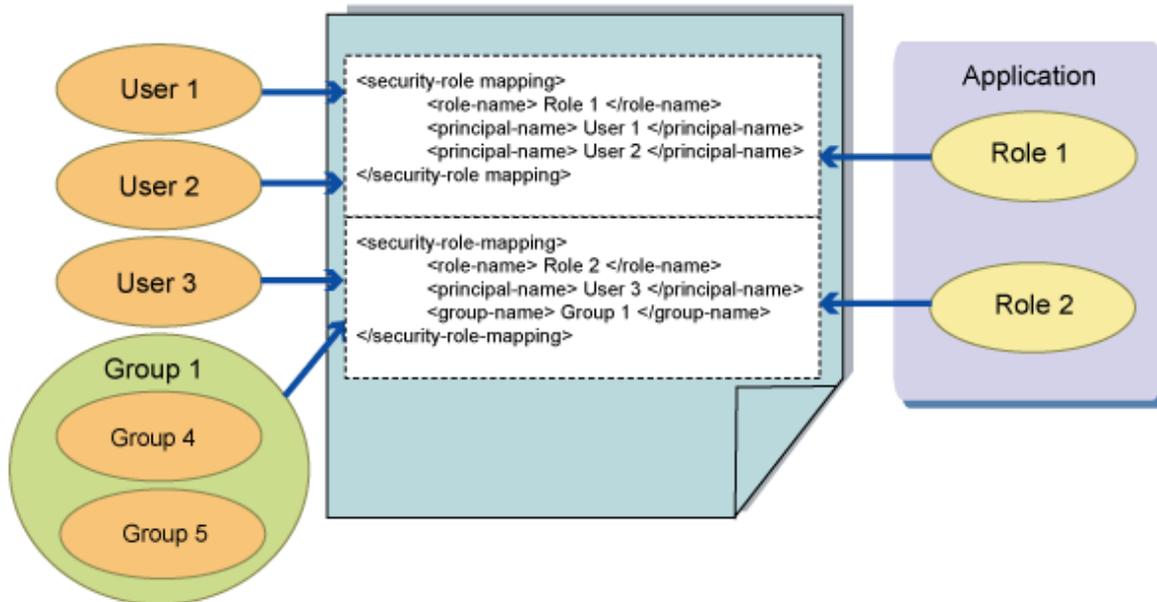
5.3.1 Role and Role Base Access Restriction Settings

The application developer edits the deployment descriptor and configures the role settings and access restriction settings according to the role.

For details, refer to the Java EE 5, Servlet 2.5, and EJB 3.0 specifications.

5.3.2 Mapping a Role to the User/group

The person responsible for deployment edits the Interstage deployment descriptor and maps the user or group to the role.



Example

An example of the Interstage deployment descriptor description is as follows:

```

<security-role-mapping>
  <role-name>role1</role-name>
  <principal-name>user1</principal-name>
  <principal-name>user2</principal-name>
</security-role-mapping>
<security-role-mapping>
  <role-name>role2</role-name>
  <principal-name>user3</principal-name>
  <group-name>group1</group-name>
</security-role-mapping>

```

For details, refer to "3.2.3 Interstage Deployment Descriptor".

5.3.3 Creating the Realm

The file realm is already included in the IJServer cluster.

When the realm used is not the file one, then a new realm must be created to meet the requirements. Use the Interstage Java EE Admin Console or the `asadmin` command to create the realm.

- Interstage Java EE Admin Console

Click [Settings]>[<cluster-name>-config] or [server-config]>[Security]>[Realm].

- `asadmin`

Refer to "create-auth-realm Subcommand" in the "Java EE Operation Commands" chapter.

5.3.4 Default Realm Settings

The realm used by the application can be specified in the application deployment descriptor. A default realm can be set when a one is not specified in the deployment descriptor:.

- Interstage Java EE Admin Console

Click [Settings]>[<cluster-name>-config] or [server-config]>[Security].

- asadmin

Refer to "set Subcommand" in the "Java EE Operation Commands" chapter.

For details on the items, refer to "7.8.12 Security Definition Items" in the "List of Definition Items Java EE Application Development" chapter.

5.3.5 Idap Realm Settings

Connection to Interstage Directory Service

The system administrator performs the following settings using the Interstage Java EE Admin Console or asadmin command.

- Interstage Java EE Admin Console

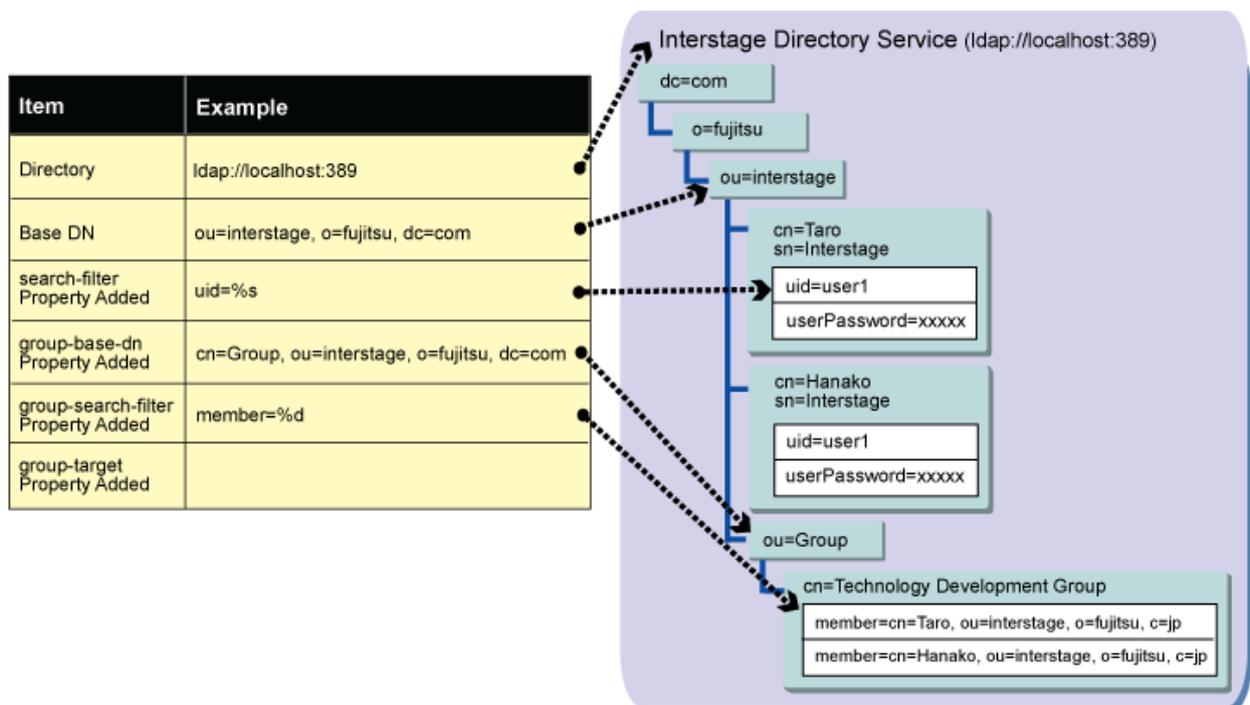
Click [Settings]>[<cluster-name>-config] or [server-config]>[Security]>[Realm], select the realm, and then change the value for the item.

- asadmin

Refer to "set Subcommand" in the "Java EE Operation Commands" chapter, then change the value for the item.

For details on the ldap realm settings items, refer to "7.8.12 Security Definition Items" in the "List of Definition Items" chapter.

Note that if the settings are modified, IJServer cluster must be restarted.



For details, refer to the Interstage Java EE Admin Console Help or "asadmin" in the "Java EE Operation Commands" chapter.

User/group Management

The system administrator registers the user/group used in the security functionality in the Interstage Directory Service.

The object class uses the following.

- User: Internet user(inetOrgPerson)
- Group: group(groupOfNames)

For details on the method to register the user/group, refer to the Directory Service Operator's Guide.

User Settings

The following attributes are set for the user.

Attribute name	Value that is set	Remarks
Cn	Specify a user name.	-
Sn	Specify a user surname.	-
Uid	Specify a user ID.	This attribute is used in user authentication (it can be customized). Set a unique ID in the public directory. If the ID is not unique, security is not applied correctly. Multi byte characters cannot be specified.
UserPassword	Specify a password.	This attribute is used in user authentication. Multi byte characters cannot be specified. For details on how to create the specified password, refer to "Notes on the Java EE Password" in the "Release Information" chapter.

Group Settings

The following attributes are set for the group.

Attribute name	Value that is set	Remarks
Cn	Specify a group name.	Groups and roles are mapped using this attribute (it can be customized).
Member	Specify a DN for the user that belongs to the group.	



Note

To update information managed in LDAP while the IJServer cluster is running, either disable the authentication information pool first, or restart the IJServer cluster afterwards. For details on authentication information pools, refer to "7.8.12 Security Definition Items" in the "List of Definition Items" chapter.

5.3.6 File Realm Settings

The system administrator registers the user/group using the Interstage Java EE Admin Console or asadmin command.

- Interstage Java EE Admin Console

Click [Settings]>[<cluster-name>-config] or [server-config]>[Security]>[Realm], select the realm, and then change the value for the item.

- asadmin

Refer to "set Subcommand" in the "Java EE Operation Commands" chapter, then change the value for the item.



Note

Change the key file setting when the IJServer cluster is not running, otherwise message SYNC021, SYNC022, or SYNC023 will be output and it will no longer be possible to perform authentication using the file realm.

For details on the file realm settings items, refer to "7.8.12 Security Definition Items" in the "List of Definition Items" chapter.

File Realm User Settings

Set the following items for the file realm user:

Item name	Settings	Remarks
User ID	Specify the user name.	Create a user ID of at between 1 and 255 characters long, comprised of the following characters: - Alphanumerics - Underscores ("_") - Dashes ("-") - Dot characters (".")
Group List	Specify the list of groups that the user belongs to.	
New Password	Set a password for the user name.	Multibyte characters, spaces and control code cannot be specified. For details on how to create the specified password, refer to "Notes on the Java EE Password" in the "Release Information" chapter.
Confirm New Password	Confirm Password	Enter the same value as for "New Password".

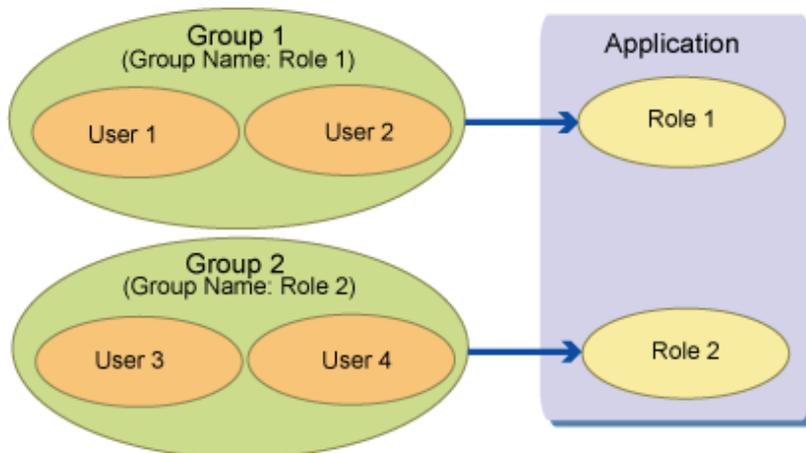
 **Note**

- The file realm shares the user/group between IJServers cluster by default. To manage the user/group separately per IJServer, modify the place where they are archived in the file realm key file.
- If the settings are modified, the IJServer cluster must be restarted. If a user/group is shared between IJServer clusters, all the IJServer clusters that share the user/group must be restarted.
- In the password input from the command line using the asadmin command, it may not be possible to enter a password that exceeds the recommended length. If the password cannot be input from the command line, change the password from the GUI.

5.3.7 When the Application Developer/Person Responsible for Deployment/System Administrator are the Same Person

Depending on the environment, the roles of application developer/person responsible for deployment/system administrator may be taken by the same person.

In this case, the name of the group that the authenticated user belongs to can be used as the role, so there is no need to map the user/group to the role.



For details, refer to the Interstage Java EE Admin Console Help or "asadmin" in the "Java EE Operation Commands" chapter.

5.3.8 Security Manager Operations

This section explains the Security Manager operations.

5.3.8.1 Enabling and Disabling Security Manager

In the default state, the IJServer cluster and Interstage Java EE DAS service instance Security Manager is disabled.

To enable Security Manager, configure the settings shown below using the Interstage Java EE Admin Console or the `asadmin` command, and then restart the IJServer cluster.

- Interstage Java EE Admin Console

Enable the [Settings]>[<cluster-name>-config] or [server-config]>[Security] Security Manager check box.

or,

Add `-Djava.security.manager` to the [Settings]>[<cluster-name>-config] or [server-config]>[JVM Settings]>[JVM Options] options.

- The `asadmin` command `create-jvm-options` subcommand

Add `-Djava.security.manager` to the JVM option.

When Security Manager is disabled, use the Interstage Java EE Admin Console or the `asadmin` command `delete-jvm-options` subcommand to restore the above settings to their original settings, then restart the IJServer cluster.



Note

Notes on using IIOP communication Solaris64

If the application that uses Security Manager performs IIOP communication and uses an EJB, JMS, or CORBA service application call function, perform one of the following actions:

- Set the following as the system property:

```
jdk.corba.allowOutputStreamSubclass=true
```

- Add the following permission to the policy file:

```
permission java.io.SerializablePermission "enableSubclassImplementation";
```

If you do not perform one of these actions, the following exception may occur during IIOP communication:

```
java.security.AccessControlException: access denied (java.io.SerializablePermission  
enableSubclassImplementation).
```

5.3.8.2 Editing the Policy File

When the IJServer cluster is created, the default policy file used in that IJServer cluster is placed in the directory shown below.

The access privileges required for operations in the IJServer cluster are already set in the default policy file.

Windows32/64

[Java EE common directory]\nodeagents\ijna\[server instance name]\config\server.policy

Solaris32/64 Linux32/64

[Java EE common directory]/nodeagents/ijna/[server instance name]/config/server.policy

To enhance the security to fit the operating environment, copy the default policy file to any directory, then edit it.

Additionally, so that the default policy file will not be used in the IJServer cluster, set "`-Djava.security.policy=[full path for the policy file that was edited]`" for the IJServer cluster JVM option. This JVM option is enabled by restarting the IJServer cluster.

Use the Interstage Java EE Admin Console or the `asadmin` command `create-jvm-options` subcommand for the JVM option setting.

- Interstage Java EE Admin Console
Click [Settings]>[<cluster-name>-config] or [server-config]>[JVM Settings]>[JVM Options]
- The asadmin command create-jvm-options subcommand



Notes on editing the policy file

Do not change the Interstage Java EE DAS Service policy file.

The privileges required to run the IJServer cluster are set in the default policy file.

Do not change or delete the part from "// Core server classes get all permissions by default" to "//Required to register MBeans, fails otherwise". If this is changed, the IJServer cluster may not start any more.

To use multibyte characters in the policy file, either archive it using UTF-8, or set "-Dsun.security.policy.utf8=false" for the IJServer cluster JVM option.

If the policy file is defined in a location other than the default location, it will not be a target of the backup command. Back it up manually.

5.3.8.3 Application Access Privileges Settings

The policy file is comprised of the grant syntax and multiple permission syntaxes. To prevent deterioration in the security level, set access privileges that are appropriate for the applications that must be changed, not for all applications.

To change the application access privileges:

1. Locate the following comments in the policy file.
 - // Please change the following content if necessary.
 - // Basic set of required permissions granted to all remaining code
2. Set access privileges using the "grant" syntax.

A number of access privileges are already defined by default, so change them if necessary.

For example, if you only want to assign privileges for a specific Java EE application even though there are read and write privileges for all files by default, first comment out the default definition (*1), and then add the privileges for the specific Java EE application (*2).

```
// Please change the following content if necessary.
// Basic set of required permissions granted to all remaining code
grant {
    :
//   permission java.io.FilePermission      "<<ALL FILES>>", "read,write";   (*1)
    :
};
grant codeBase "file:${com.sun.aas.installRoot}/var/domains/interstage/applications/j2ee-apps/
[application name]/-" {
    permission java.io.FilePermission      "<<ALL FILES>>", "read,write";   (*2)
};
```

To use access control for each application, the grant statement codeBase must be set.

For details on the default value \${com.sun.aas.instanceRoot} variables and \${com.sun.aas.installRoot} variables, refer to "[7.8.1 Properties Used when Creating and Updating Definitions](#)" in the "List of Definition Items" chapter.

To use access control for all Java EE applications (EAR modules) that were deployed to the IJServer cluster, specify as follows:

```
grant codeBase "file:${com.sun.aas.installRoot}/var/domains/interstage/applications/j2ee-apps/- " {
...
};
```

To use access control per Java EE application (EAR module), specify as follows:

```
grant codeBase "file:${com.sun.aas.installRoot}/var/domains/interstage/applications/j2ee-apps/
[application name]/-" {
...
};
```

To use access control per module, such as per Web module (war), EJB module (ejb-jar), or connector(rar), specify as follows:

```
grant codeBase "file:${com.sun.aas.installRoot}/var/domains/interstage/applications/j2ee-modules/
[module name]/-" {
...
};
```

To use access control for the stub code that is output at the time of the deployment, specify as follows:

```
grant codeBase "file:${com.sun.aas.instanceRoot}/generated/-" {
...
};
```

To use access control for JSP, specify the JSP compile result archive destination directory. The default value is the same as the above stub.

If the compile result output directory is changed, specify the compile result output destination directory.

For details on the access privileges (the "permission" syntax) that are set in the server.policy file, refer to the following site:

- <http://docs.oracle.com/javase/6/docs/technotes/guides/security/permissions.html>

For details on the Permission class Javadoc, refer to the following site:

- <http://docs.oracle.com/javase/6/docs/api/java/security/Permission.html>

5.4 Web Service Security Settings

The HTTP Basic authentication function and SSL can be used to make the Web service secure.

Making the Web Service Secure Using the HTTP Basic Authentication Function

By setting HTTP Basic authentication in the Web service and configuring appropriate permissions settings (authorization settings), client identification and calls from other than permitted clients can be eliminated.

To secure the Web service using the HTTP Basic authentication function, configure the settings below.

- When the implementation class is a JAX-WS endpoint, the settings method is the same way as for the Servlet. For details, refer to "[3.2.2.2 Web Application Deployment Descriptor \(web.xml\)](#)" in the "Java EE Application Development" chapter.
- When the implementation class is a Stateless Session Bean, configure authorization settings for the Stateless Session Bean and then configure the HTTP Basic authentication settings by creating the webservice-endpoint element and describing the login-config element in the Interstage deployment descriptor for the EJB application (EJB JAR file). For details, refer to "[3.2.3.3 Interstage EJB Application Deployment Descriptor \(sun-ejb-jar.xml\)](#)" in the "Java EE Application Development" chapter..

In HTTP Basic authentication, the user name and password in the communication channel are not encrypted. When HTTP Basic authentication is used, it is normally used together with SSL to prevent wiretapping in the communication channel.

Making the Web Service Secure Using SSL

By using SSL, in addition to the prevention of communication channel wiretapping and information leaks by encrypting communication, client identification and calls from other than permitted clients can be eliminated because SSL has been set for the performance of client authentication.

To make the Web service secure using SSL, set SSL in the Web server in the same way as for setting SSL in the Web application. The settings method is the same way as for the Servlet. For details, refer to "[5.2.3 SSL](#)".

5.5 Web Service Client Security Settings

The HTTP Basic authentication function or Web service that was made secure using SSL can be called.

Calling the Web Service by Setting the HTTP Basic Authentication Information

When the HTTP Basic authentication is set in the Web service that is called, the HTTP Basic authentication information must be set in the request from the Web service client.

The authentication information can be set by the security callback handler in the same way as for the Java EE application client. For details on the settings, refer to "[Java EE Application Client Authentication](#)".

If access using this method fails, then use the JAX-WS API `javax.xml.ws.BindingProvider` in the application to specify the `USERNAME_PROPERTY` and `PASSWORD_PROPERTY` in the request message context.



Example

When the user name is "username", and the password is "password"

```
stock.server.StockQuoteProvider port = service.getStockQuoteProviderPort();
((BindingProvider)port).getRequestContext().put(BindingProvider.USERNAME_PROPERTY, "username");
((BindingProvider)port).getRequestContext().put(BindingProvider.PASSWORD_PROPERTY, "password");
```

In HTTP Basic authentication, the user name and password in the communication channel are not encrypted. When HTTP Basic authentication is used, it is normally used together with SSL to prevent wiretapping in the communication channel.

Calling the Web Service Using SSL

By using SSL, communication channel wiretapping and information leaks can be prevented by encrypting communication.

When "https" is specified for the Web service endpoint URL, the calling of the Web service that was made secure using SSL is performed according to the JSSE(Secure Socket Extension) settings. This can also be specified in the keystore/truststore settings of the certificate that is used. For details, refer to "[5.2.3 SSL](#)".

5.6 Authentication Information at the Time of Resource Access

This section explains the authentication information (user name/password) that is used to access the following resources.

- JDBC resources
- JMS connection factories
- Connector resources

By specifying the `<res-auth>` tag in the deployment descriptor file (`web.xml` or `ejb-jar.xml`), it is possible to select either application management authentication (Application) or container management authentication (Container) as the resource authentication method.

Application Management Authentication (Application)

When application management authentication (Application) is specified, specify the authentication information when the authentication method is called in the application.

Authentication method argument	Authentication
None	The Authentication failed exception (for a JDBC resource, this is <code>java.sql.SQLException</code>) is returned
Specify the user name/ password	Authentication is performed using the specified user name/password

The authentication methods for each resource are as follows:

Resource	Authentication method
JDBC resources	The <code>javax.sql.DataSource</code> class <code>getConnection</code> method

Resource	Authentication method
JMS connection factories	<ul style="list-style-type: none"> - The javax.jms.ConnectionFactory class createConnection method - The javax.jms.QueueConnectionFactory class createQueueConnection method - The javax.jms.TopicConnectionFactory class createTopicConnection method
Connector resources	javax.resource.spi.ConnectionRequestInfo class information that is passed to the javax.resource.spi.ConnectionManager class allocateConnection method (*1)

*1 This authentication method is executed in the resource adapter, so it will depend on the resource adapter implementation. For details on using authentication, ask the resource adapter provider.

Container Management Authentication (Container)

When container management authentication (Container) is specified, the authentication information specified when the authentication method is called in the application is ignored, and the container determines the authentication information (Principal) according to the priority order shown below.

1. [Connector resources only] security maps

If the caller authentication information exists, the Backend Principal that is mapped to it can be used as the authentication information for authentication with EIS. The function that maps this Backend Principal is called the "Security Map".

If the caller authentication information does not exist, or the Backend Principal that is mapped to it has not been defined, the authentication information in 2. and below will be used. For details on the security maps, refer to "[Security Maps](#)".

2. Interstage deployment descriptor default authentication information

If the Interstage deployment descriptor file <resource-ref><default-resource-principal> tags have been defined, the authentication information that was defined is used.

3. [Connector resources only] resource adapter connection definition properties

If one of the property names shown below is defined in the ra.xml <connector><resourceadapter><outbound-resourceadapter><connection-definition><config-property> tags, the authentication information that was defined is used.

- User name: Property value for the "USERNAME" or "USER" property
- Password: Property value for the "PASSWORD" property

4. Resource class properties

If the getter/setter method has been implemented in the resource class, the method return values shown below will be used as the authentication information. When this method return value is specified for the JDBC Connection Pool, JMS connection factory, or Connector Connection Pool additional properties (UserName, User, Password), the value is called and can be changed when the corresponding setter method is executed.

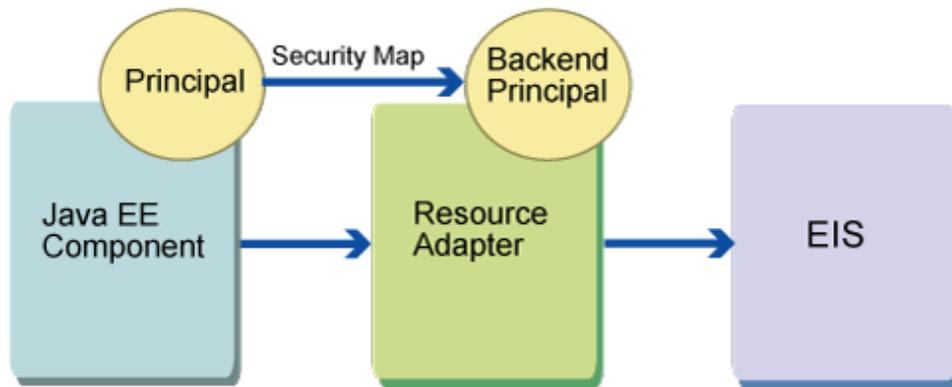
- User name: getUsername() or getUser() return value
- Password: getPassword() return value

5. If none of the above applies

If none of the above applies, an empty string will be used as the authentication information.

Security Maps

The security map function can be used when container management authentication using connector resources is selected.



The "Security Map Function" maps the Java EE component Principal that accesses EIS using the resource adapter to the Backend Principal that is used for authentication with EIS.

A security map is defined according to the following format:

```
Map source: Principal/User Group
Map destination: Backend Principal
```

Separate multiple map sources with commas (","). Multiple Principals or user groups can be defined for a security map. When the Principal and user group are registered in the map source at the same time, however, Principal will have the higher priority when the mapping function is active.

The asterisk (*) that means "wildcard" can also be specified for the Principal/ user group.

Specify (user name/password pair) for the map destination Backend Principal.

Set the security map in the Connector Connection Pool. Multiple security maps can be specified for one Connector Connection Pool.

The resource adapter uses the Backend Principal for authentication with EIS.

Managing Security Maps

The methods shown below can be selected for security map management.

- Select the Connector Connection Pool using the Interstage Java EE Admin Console, and then click the [Security Maps] tab. The [Security Maps] window is displayed. Execute the create new/update/delete operations in this window.
- Use the asadmin command subcommands shown below for the create new/update/delete/list operations (for details, refer to "Subcommands - Category: Security" in the "Java EE Operation Commands" chapter):
 - create-connector-security-map
 - delete-connector-security-map
 - update-connector-security-map
 - list-connector-security-maps

Note

- When the Connector Connection Pool is deleted, any security maps set in that pool will also be deleted.
- When the security map is operated from the Interstage Java EE Admin Console and both Principal and user group are registered in the map source at the same time, then only Principal is displayed, because it has the higher priority when the mapping function is active.
- When the security map is operated from the asadmin command, then all registered Principals or user groups are displayed by specifying the list-connector-security-maps subcommand "verbose" option.

5.7 JMS Security Function

The following are explained as the security function that is provided by the JMS function.

- [Users and Groups](#)
- [Access Control Properties File](#)
- [Authentication Method for Using JMS from an Application](#)

5.7.1 Users and Groups

Interstage JMS provides a function that manages the users and groups that are required for connection with the message broker.

When the user connects to the message broker (connection from an application, at the time of command execution), the message broker checks the user name and password that were provided and authenticates them.

A user belongs to one of the following three groups.

admin group

This is the message broker administrator. Users assigned to this group can set message brokers and manage by default. The administrator can assign multiple users to the admin group.

user group (default)

This is the normal JMS user. By default, this user can execute the following:

- Send/receive messages to/from all physical storage destinations
- Create consumers/producers/queue browsers for all physical storage destinations

anonymous group

This is for clients that do not use user names that are recognized by the message broker. It is used when a user name that is actually used by the client application is not recognized.

Single Layer Type File Repositories

The single layer type file repository manages users in files created on each message broker.

Single layer type file repository group names cannot be modified or deleted, nor can new groups be created, however it is possible to define whether operations by users that belong to a group can be executed. For details, refer to "[5.7.2 Access Control Properties File](#)".

The single layer type file repository retains the following two user types by default. To create a new user and manage the use, use the `imquusermgr` command.

User name	Password	Group	Active status
Admin	Admin	admin	Active
Guest	Guest	anonymous	Active

Note

- From a security perspective, modify the admin user password that is retained by default immediately after the message broker is created. If the password is modified using a command, the JMS host admin password settings that are managed in the IJServer cluster must also be modified.
- Once a user has been created, the group cannot be modified. To modify the group that the user belongs to, delete the user, then create the user again so that it belongs to the group that you want to modify.

5.7.2 Access Control Properties File

The user and group operations that can be executed are specified in the access control properties file. Different access control properties files can be used for each message broker.

This function can only be used when the `imq.accesscontrol.enabled` of the message broker property is enabled.

For details on `imq.accesscontrol.enabled`, refer to "[7.7.5 Security Properties](#)" in the "List of Definition Items" chapter.

The message broker checks the access control properties file when the following operations are executed.

- Connection to the message broker
- Access to a physical storage destination: Creation of consumers, producers, or queue browsers for a specific physical storage destination, or all physical storage destinations
- Automatic generation of the physical storage destination

The access control properties file is stored as follows:

Windows32/64

```
[Java EE common directory]\domains\interstage\imq\instances\${message broker name}\etc  
\accesscontrol.properties
```

Solaris32/64 **Linux32/64**

```
[Java EE common directory]/domains/interstage/imq/instances/${message broker name}/etc/  
accesscontrol.properties
```

The following rules for the performance of access control can be specified in the access control properties file.

- Access control for connections to the message broker
- Access control for physical storage destinations
- Access control for automatic generation of the physical storage destination



Note

- Do not change the version property of the access control properties file.
- To edit the access control properties file, stop the message broker and then edit the file.

The following are explained below.

- [Basic Syntax of the Rules that are Described in the Access Control Properties File](#)
- [Rules for Defining the Access Control Properties File](#)
- [Notes on when the Resource Type is "connection"](#)
- [Notes on when the Resource Type is "queue" or "topic"](#)

Basic Syntax of the Rules that are Described in the Access Control Properties File

The basic syntax for describing the access control rules in the access control property is described by concatenating the elements using dots (.).

- When the resource type is "connection"

```
Resource type.Resource name.Access type.Target type=Principal
```

- When the resource type is "queue" or "topic"

- When the access rule type is not create

```
Resource type.Resource name.Access rules type.Access type.Target type=Principal
```

- When the access rule type is "create"

```
Resource type.Access rules type.Access type.Target type=Principal
```

Each element is explained below.

Element	Meaning	Value that is set
Resource type (resourceType)	The resource type that applies the rule is specified.	One of the following is specified: - connection - queue - topic
Resource name (resourceVariant)	The name that identifies the resource that was specified in the resource type is specified. If this does not need to be identified and access control for all the resources that correspond to the resource type is to be enabled, a wildcard (*) can also be specified. When "create" is specified as the access rules type, omit the resource name.	The resource name or wildcard is specified. The following resource names are valid. - When the resource type is connection NORMAL or ADMIN - When the resource type is "queue" or "topic" The name of the physical connection destination
Access rules type (operation)	The access rules type for the resource is specified. This is only specified when the resource type is "queue" or "topic".	One of the following is specified: - produce (send) - consume (receive) - browse (search) (*1) - create (create) *1 This can only be specified when the resource type is "queue".
Access type (access)	Whether or not access to the principal is allowed is specified.	One of the following is specified: - allow (allow access) - deny (do not allow access)
Target type (principalsType)	Whether the access permissions recipient is a user or a group is specified.	One of the following is specified: - user(user) - group(group)
Principal (principals)	The access permissions recipient is specified. When more than one user or group is specified, separate each one using a comma (.).	- When the target type is user, the user name or list of user names is specified. - When the target type is group, the group name or list of group names is specified. - When there is no need to specify a user or group, a wildcard (*) is specified.

Note

Only the ASCII code can be described in the access control properties file. If an access control properties file that contains a character string that is not ASCII code is used, Unicode escape characters (\uXXXX) must be used.

Rules for Defining the Access Control Properties File

The rules for defining the access controls in the access control properties files are explained below.

- Access privileges not defined in the access control properties files will be denied.

- When multiple access rules exist for the same condition, the access rule that was defined last will be the effective rule.

Example

In the following definition, the access rule "queue.q1.consume.allow.user=user3" is effective.

```

:
:
queue.q1.consume.allow.user=user1,user2
queue.q1.consume.allow.user=user3

```

- If multiple access rules exist and the conditions for the access rules are the same except for the access types (allow/deny), the definitions for these access rules will be invalid.

Example

Of the following definitions, definition (2) and (3) are invalid, but definition (1) is effective.

```

queue.*.consume.allow.user=user1 (1)
queue.q1.consume.allow.user=user1 (2)
queue.q1.consume.deny.user=user1 (3)

```

- The access rule priority level is shown below.

Definition	Priority level
Resource name	1. Specific resource name 2. Wildcard
Target type/Principal	1. Specific user 2. Specific group 3. The user for the specified wildcard 4. The group for the specified wildcard

Example

Priority level for the "connection" or "queue" resource

Priority level	"connection" resource	"queue" resource
High	connection.NORMAL.allow.user=user1	queue.q1.consume.allow.user=user1
	connection.NORMAL.allow.group=user	queue.q1.consume.allow.group=user
	connection.NORMAL.allow.user=*	queue.q1.consume.allow.user=*
	connection.NORMAL.allow.group=*	queue.q1.consume.allow.group=*
Low	connection.*.allow.user=user1	queue.*.consume.allow.user=user1
	connection.*.allow.group=user	queue.*.consume.allow.group=user
	connection.*.allow.user=*	queue.*.consume.allow.user=*
	connection.*.allow.group=*	queue.*.consume.allow.group=*

Notes on when the Resource Type is "connection"

By default, permissions for access to NORMAL connection services are assigned to all users, and permissions for access to ADMIN connection services are assigned to users that belong to the admin group.

```
connection.NORMAL.allow.user=*
connection.ADMIN.allow.group=admin
```

The method that is used to assign permissions for access to ADMIN connection services is different depending on the user repository.

- Single layer type file repository
 - When access control is disabled, permissions for access to ADMIN connection services are assigned to the admin group.
 - When access control is enabled, access permissions are assigned according to the rules described in the access control properties file.

Notes on when the Resource Type is "queue" or "topic"

By default, permissions for access to any physical storage destination ("queue" or "topic") are retained for all users/groups.

```
queue.*.produce.allow.user=*
queue.*.consume.allow.user=*
queue.*.browse.allow.user=*
topic.*.produce.allow.user=*
topic.*.consume.allow.user=*
```

Additionally, when the resource type is "queue" or "topic", it is possible to specify access control for whether the physical storage destination is generated automatically or not. As the default for automatically generated access control, access permissions for the automatic creation of the physical storage destination are retained in the message broker for all users/groups.

For details on the automatic generation of the physical storage destination, refer to "[2.19.3 Physical Storage Destination Management](#)" in the "Functionality Provided in the Java EE Application" chapter.

```
queue.create.allow.user=*
topic.create.allow.user=*
```



Note

The access rules for automatic creation of the physical storage destination and the access rules for the physical storage destination must match.

5.7.3 Authentication Method for Using JMS from an Application

Authentication for the message broker when JMS is used from an application uses the following user ID/password.

When the deployment descriptor<res-auth> tag definition is "Application"

getConnection method argument	Authentication
None	javax.jms.JMSSecurityException is returned
User ID/password are specified	Authentication using the user ID/password that were specified

When the deployment descriptor<res-auth> tag definition is "Container"

Caller authentication information (principal)	Interstage deployment descriptor <resource-ref> <default-resource-principal> definition (*1)	Authentication
Exists	-	Authenticated using the caller component authentication information

Caller authentication information (principal)	Interstage deployment descriptor <resource-ref> <default-resource-principal> definition (*1)	Authentication
Does not exist	Exists	Authenticated using the defined user information
	None	Authenticated using the UserName/Password property value for the JMS connection factory added property

*1 When the JMS connection factory authentication information that is used to receive Message-driven Bean messages is defined in the Message-driven Bean unit, it is defined in <activation-config-property> of ejb-jar.xml. The property names that are defined are as follows. For details on the definition method, refer to "Activation Configuration Properties" in the EJB specifications for EJB2.1 and later.

- User ID property name: UserName
- Password property name: Password

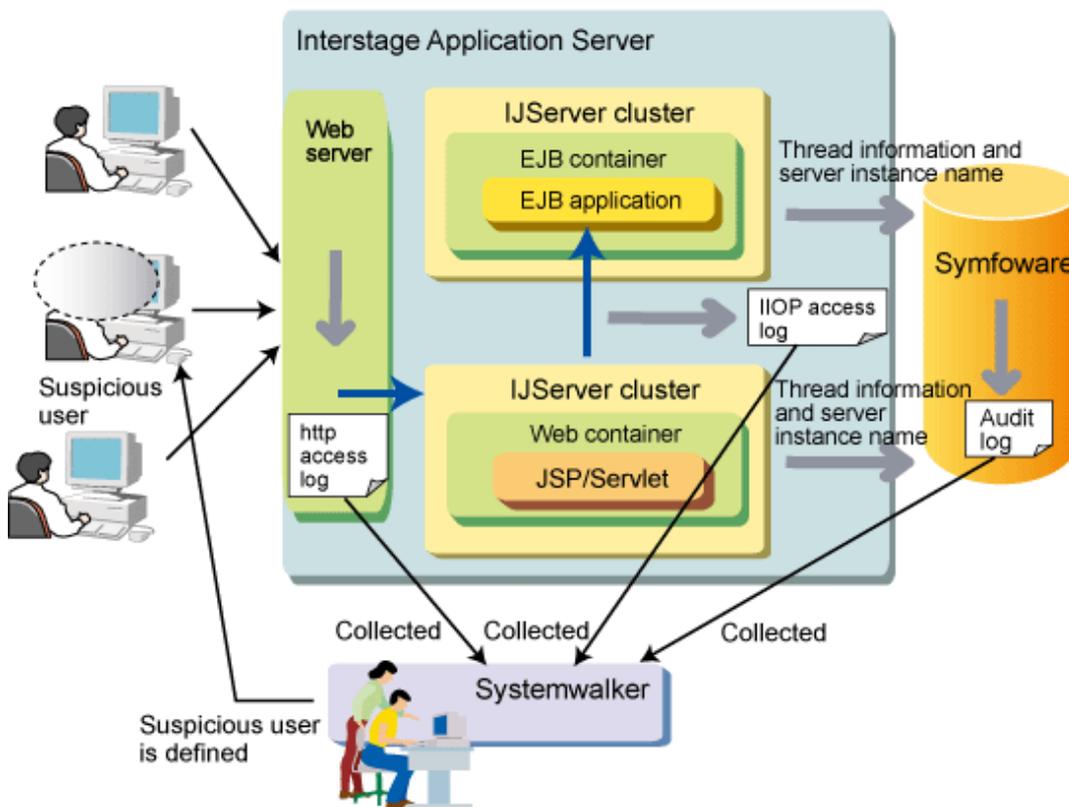
5.8 Symfoware Audit Trails

When applications perform operations for Symfoware in Interstage Java EE, this operation information is output automatically to the Symfoware audit log database.

The audit log automatic output feature is provided in Symfoware. The output information contains the access time, access IP, and executed SQL statement. To provide detailed information that will be used in trace investigations, the audit trail feature provided in Interstage Java EE adds the server instance name and thread information to the Symfoware audit log.

In Interstage Java EE, the server instance name and thread information can be output to the Symfoware audit log automatically following linkage with Symfoware, as shown in the figure below.

Since the thread information will be output to the audit log together with the database access information (such as issued SQL statements), it is also possible to specify which database data to operate from which thread of which server instance.



5.8.1 Executing Symfoware Audit Trails

In the Symfoware audit trail feature, Interstage calls the following procedures that are provided in Symfoware, when the connection to Symfoware is obtained, and the information that will be output to the Symfoware audit log is set automatically.

- CALL RDBII_SYSTEM.RDBII_CLIENT_INF_PROC[?]

The argument value is the CLINET_INF value.

- CALL RDBII_SYSTEM.RDBII_MODULE_INF_PROC[?,?]

The first argument is the MODULE_INF value.

Nothing is set for the second argument.

If the setting fails, a warning message is output to the server log but processing is continued.

For details on CLINET_INF and MODULE_INF, refer below.

5.8.2 Output Information Content

5.8.2.1 Correspondence with the Symfoware Audit Log

The information (access information) that is output following linkage between Interstage Java EE and Symfoware is as follows:

Information obtained	Correspondence with the Symfoware audit log	Maximum length
Thread ID	CLIENT_INF	64
Thread name		
Server instance name	MODULE_INF	64

In client applications, the "_CLIENT" string is output as the server instance name.

- CLINET_INF

The information is set for CLINET_INF in the following format. Parts in italics are variable information.

Format

```
ThreadID= thread ID,ThreadName=thread name
```

Variable information

Thread ID: Access thread ID

Thread name: Access thread name

Output example

```
ThreadID=3548,ThreadName=httpWorkerThread-28080-4
```



If the length exceeds 64, the data after 64 will be truncated.

- MODULE_INF

Format

```
server instance name
```

Output example

```
Instance001
```

5.8.2.2 Information Recorded for the Various Operations

The following database operations are recorded in the AUDIT table:

Operation	Column			
	ACCESS_TYPE	AUDIT_TEXT	CLIENT_INF	MODULE_INF
Obtain physical connection	N: Execute application CONNECT statement	-	-	-
Execute SQL statement for connection validation	-	SQL for connection validation	User thread information	User server instance name
Application executes SQL statement	-	SQL executed by the application	User thread information	User server instance name
Close physical connection	D: Execute application DISCONNECT statement	-	Thread information for the last user of the corresponding physical connection	Server instance name for the last user of the corresponding physical connection

For details on the AUDIT table, refer to the Symfoware manual.



Note

- When this feature is used, the audit log database must be configured.
For details on the information that is configured, refer to the Symfoware manual.
- The Symfoware audit log feature automatically records access times, access IPs, and the operations that were executed.
For details, refer to the content that is related to the audit log feature in the Symfoware manual.
- The fact that the audit trail feature executes the two stored procedures that are provided in Symfoware is also recorded. At this time, the oldest information may be output to the thread information. Ignore this information.

Chapter 6 Java EE Function Tuning

This chapter explains how to tune Java EE applications.

6.1 Interstage Java EE DAS Service Tuning

The Interstage Java EE DAS service must be tuned to perform the operations shown below.

This section explains the settings content that is required for each operation, and how to set the content.

- [Using a Proxy](#)
- [Changing the Operation Management HTTP Listener Port Number](#)
- [Changing the Operation Management HTTP Listener Port Number \(when the Interstage Java EE DAS Service Cannot Start\)](#)
- [Changing the Settings for Using Operation Management HTTP Listener SSL Communication](#)
- [Enabling the Monitoring Service Definition Item](#)

Using a Proxy

To obtain external resources via a proxy when deploying a web service application, for example, the following must be set for the java process system properties used by the Interstage Java EE DAS service.

Key	Value that is set	Remarks
http.proxyHost	Host name	If this value is not specified, the connection is made without using a proxy.
http.proxyPort	Port number	
http.nonProxyHosts	Host name used for connection without using a proxy	If multiple hosts are specified, use a () to separate them.
http.proxyUser	User name	Set this for the proxy to perform basic authentication.
http.proxyPassword	Password	

Use the Interstage Java EE Admin Console to change the following item:

- [Settings] > [server-config] > [JVM Settings] > [JVM Options]

The asadmin command create-jvm-options subcommand can also be used for this. For details, refer to "asadmin", "create-jvm-options Subcommand" in the "Java EE Operation Commands" chapter.



Note

- To set these items using the asadmin command create-jvm-options subcommand, specify 'server' in the target option.
- The Interstage Java EE DAS service must be restarted to enable the changes.
- When setting the system property, -D must be added in front of the key value, as shown below.
-D"key value"="Value that is set"

Changing the Operation Management HTTP Listener Port Number

To change the port number, follow the procedure below:

1. Start the Interstage Java EE DAS service.

Windows32/64

Start the Interstage Java EE DAS service.

Solaris32/64 **Linux32/64**

Execute the `ijdasstart` command. For details, refer to "ijdasstart" in the "Java EE Operation Commands" chapter.

If the Interstage Java EE DAS service cannot start, change the port number according to the procedure in "[Changing the Operation Management HTTP Listener Port Number \(when the Interstage Java EE DAS Service Cannot Start\)](#)".

2. Change the HTTP listener port number.

Update the "server.http-service.http-listener.admin-listener.port" definition item using the `asadmin` command set subcommand.

Example

Example: Changing the port number to 8929

```
> asadmin set server.http-service.http-listener.admin-listener.port=8929
server.http-service.http-listener.admin-listener.port=8929
```

3. Correct the `asadminenv.conf` file.

Change the `asadminenv.conf` file to reflect the operation management HTTP listener port that is to be used.

Example

Changing the port number to 8929

```
AS_ADMIN_PORT=8929
AS_ADMIN_PROFILE=cluster
AS_ADMIN_SECURE=true
AS_ADMIN_REALM=os
```

4. Restart the Interstage Java EE DAS service.

Windows32/64

Restart the Interstage Java EE DAS service.

Solaris32/64 **Linux32/64**

Execute the `ijdasstop` command, and then execute the `ijdasstart` command to restart the service. For details, refer to "ijdasstop" and "ijdasstart" in the "Java EE Operation Commands" chapter.

Changing the Operation Management HTTP Listener Port Number (when the Interstage Java EE DAS Service Cannot Start)

When the Interstage Java EE DAS service cannot start because the operation management HTTP listener port number is being used by another application, for example, correct `domain.xml`.

How to correct `domain.xml`

Open the file below using a text editor, and edit the port attribute of the `http-listener` tag under the `config` tag in which 'server-config' is set for the name attribute.

[File location]

Windows32/64

[Java EE common directory]\domains\interstage\config\domain.xml

Solaris32/64 **Linux32/64**

[Java EE common directory]/domains/interstage/config/domain.xml

Example

Changing the port number to 8929

```
<config dynamic-reconfiguration-enabled="true" name="server-config">
  <http-service>
    <access-log ...
    <http-listener ...
    <!-- Interstage Java EE DAS port number -->
    <http-listener acceptor-threads="1" address="0.0.0.0"
      blocking-enabled="false" default-virtual-server="__asadmin"
      enabled="true" family="inet" id="admin-listener" port="8929"
      security-enabled="false" server-name="" xpowered-by="false"/>
```



Note

Do not change non-port items - if these are edited by mistake, it might not be possible to use the Interstage Java EE DAS service any more. Therefore, it is recommended to back up domain.xml before editing.

Changing the Settings for Using Operation Management HTTP Listener SSL Communication

Use the procedure shown below to change the settings.

1. Start the Interstage Java EE DAS service.

Windows32/64

Start the Interstage Java EE DAS service.

Solaris32/64 Linux32/64

Execute the `ijdasstart` command to start the service.

2. Change the settings for using SSL communication.

Update the `server.http-service.http-listener.admin-listener.security-enabled` definition item using the `asadmin` command set subcommand.



Example

Changing the settings for using SSL communication

```
> asadmin set server.http-service.http-listener.admin-listener.security-enabled=true
server.http-service.http-listener.admin-listener.security-enabled=true
```

3. Correct the `asadminenv.conf` file.

Change the `asadminenv.conf` file according to the settings for using operation management HTTP listener SSL communication.

For details on how to change the `asadminenv.conf` file, refer to "asadmin", "asadminenv.conf file" in the "Java EE Operation Commands" chapter.



Example

Changing the settings for using SSL communication

```
AS_ADMIN_PORT=12001
AS_ADMIN_PROFILE=cluster
AS_ADMIN_SECURE=true
AS_ADMIN_REALM=os
```

- Restart the Interstage Java EE DAS service.

Windows32/64

Restart the Interstage Java EE DAS Service

Solaris32/64 Linux32/64

Execute the `ijdasstop` command, and then execute the `ijdasstart` command to restart the service.

Enabling the Monitoring Service Definition Item

If the IJServer cluster or Interstage Java EE DAS service monitoring service definition item setting has been enabled, then Interstage Java EE DAS service memory will be used according to the number of server instances and applications that have already been deployed.

If the monitoring service setting has been enabled, make sure that there is enough memory in the Interstage Java EE DAS service. If there is not enough memory, then refer to "[6.18 Interstage Java EE DAS Service Heap Size and Address Space](#)" and take the relevant action.

6.2 Interstage Java EE Node Agent Service Tuning

Starting Multiple Server Instances at the Same Time

By default, the following memory allocation pool maximum values are set for the Interstage Java EE Node Agent service:

Windows32/64 Solaris32 Linux32/64

128MB

Solaris64

192MB

With the default tuning value, 90 instances can be started at the same time - to start more instances than that, the maximum value for the pool to allocate memory must be tuned.

Estimate Formula

Windows32/64 Solaris32 Linux32/64

(Number of instances that will be started in addition to the 90) + 128

Solaris64

(Number of instances that will be started in addition to the 90) + 192

Tuning File Name

Windows32/64

C:\Interstage\F3FMisjee\lib\processLauncher.xml (when installed in C:\Interstage)

Solaris32/64 Linux32/64

/opt/FJSVisjee/lib/processLauncher.xml

Tuning Procedure

- Stop the Interstage Java EE Node Agent service.
- Stop the Interstage Java EE DAS service.
- Open the tuning file, and search for the following:
 - `<sysproperty key="-Xmx***m"/>` (**m is the maximum value for the memory allocation pool) tag enclosed in the `<process name="s1as8-nodeagent"></process>` tags
- Change `<sysproperty key="-Xmx***m"/>` to the value calculated using the formula.
- Start the Interstage Java EE DAS service.
- Start the Interstage Java EE Node Agent service.



Note

- Do not change the other settings.

- Note that, if the server instances are increased, it might cause the memory usage for the entire system to increase.

6.3 IJServer Cluster Tuning

The tuning items detailed below are enabled in all applications that run on the IJServer cluster.

6.3.1 Multiple Process Operations

By creating multiple server instances under the IJServer cluster, identical business applications can be run using multiple processes.

The setting for the number of server instances has been designed as follows.

Reliability

By creating multiple server instances, system operations can continue using another process if the Java VM process that runs the business application crashes.

Java VM memory use

In business applications that use large amounts of memory, the amount of memory used per process can be reduced by increasing the value for this setting.

Note however, that the amount of memory used by the overall system may increase when this is increased.

Load

Create as many server instances as appropriate for the business application load.

In a high-load state, the throughput can be increased by increasing the number of server instances.



Note

Notes on multiple process operations

- Perform a load test to check that the value set for concurrent processing is valid for the application.
- Before adding a server instance, make sure that there are enough system resources, such as physical memory
- The behavior of some applications might change when using multiple server instances. Therefore, check the impact on the application before creating multiple server instances under the IJServer cluster.

Server instances can be added/deleted using the Interstage Java EE Admin Console and the asadmin command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- "asadmin", "Subcommands - Category: IJServer Cluster Operation" in the "Java EE Operation Commands" chapter
- "Definition Items of the configs.config.ijserver-control" in the "Java EE Operation Commands" chapter

For details on operations using multiple server instances, refer to "IJServer Cluster Multiple Process Configurations" in the "Functionality Provided in the Java EE Application" chapter.

6.3.2 Java VM Heap and Permanent Area Size

The Java VM heap area size and permanent area size can be modified by changing the following options.

Item	Java VM option	Default value
Maximum Java VM heap area size	-Xmx	<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">Windows32/64</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">Solaris32</div> <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">Linux32/64</div> </div> -Xmx256m <div style="border: 1px solid black; padding: 2px; margin-right: 5px;">Solaris64</div> -Xmx512m
Java VM Perm area size	-XX:MaxPermSize	-XX:MaxPermSize=192m

These options can be modified using the Interstage Java EE Admin Console and the `asadmin` command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- "Subcommands - Category: Referencing/Updating Definition Items" in the "Java EE Operation Commands" chapter
- "Definition Items of the `configs.config.java-config`" in the "Java EE Operation Commands" chapter

If the error `'java.lang.OutOfMemoryError'` occurs frequently while the application is running, the maximum size set for the Java VM heap or permanent area may be insufficient. Refer to the "JDK/JRE Tuning" chapter of the Tuning Guide, to set this value.

6.3.3 Number of Garbage Collections

In IJServer cluster, the default interval for automatic Garbage Collection using the Java RMI functionality is one hour.

The interval can be changed using the following options.

- `-Dsun.rmi.dgc.client.gcInterval=interval`
 - `-Dsun.rmi.dgc.server.gcInterval=interval`
- `interval`: Is a number in milliseconds. The default value is 3600000.

The above options can be modified using the Interstage Java EE Admin Console and the `asadmin` command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- "Subcommands - Category: Referencing/Updating Definition Items" in the "Java EE Operation Commands" chapter
- "Definition Items of the `configs.config.java-config`" in the "Java EE Operation Commands" chapter

The size of the Java VM heap may not be sufficient if the interval for automatic garbage collection is not reduced. Refer to "[6.3.2 Java VM Heap and Permanent Area Size](#)" above for details on setting the memory allocation pool.

6.3.4 Application Timeout

The value for application timeout can be modified using the Interstage Java EE Admin Console or the `asadmin` command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- "Subcommands - Category: Referencing/Updating Definition Items" in the "Java EE Operation Commands" chapter
- "Definition Items of the `configs.config.ijserver-control`" in the "Java EE Operation Commands" chapter

6.3.5 Setting the Group Management Service

The IJServer cluster uses the group management service so that the server instances can monitor their mutual statuses. For details on the functions that use this service, refer to "Group Management Service" in the "Functionality Provided in the Java EE Application" chapter.

When this service is used, each server instance periodically sends a heartbeat signal to the heartbeat address and port set for the cluster. When another server instance receives the signal, the IJServer cluster will recognize that the server instance is running normally. If the heartbeat signal was not sent to a particular server instance, then it is determined that the server instance is either not running, or that an error has occurred, and it is excluded from the group.

If there is no need for group management service, then the sending/receiving of the signal can be disabled by disabling the heartbeat. It is possible to tune the various definitions in the cases below:

- The network load is heavy, therefore the interval for the sending/receiving of the signal periodically is increased to reduce the server load.
- Access is not frequent, and there is no need for system abnormalities to be detected in real-time, therefore it is OK for the time until system abnormalities are detected to be slightly delayed to reduce the server load.

The tuning perspective for the various definition items is explained below. When each signal is sent, approximately 3300 bytes of data are sent to the multicast port. The value for the protocol maximum retry/verified timeout/ping timeout time can be reduced to shorten the

time until the system abnormality is detected. In this case, however, it might be determined that the server instance has stopped because of a temporary high load status or due to an abnormality. For this reason, it is recommended that the default value.

Definition item	Tuning perspective
Protocol timeout	Approximately 3300 bytes of data are sent at the specified interval. If a large value is set, the network load can be reduced, but stopping of server instances and detection of abnormalities will be delayed.
Protocol maximum retry	If the heartbeat signal is not sent by another server instance in the group by the time calculated from [Protocol timeout] x [Protocol maximum retry], it is determined that an abnormality (or stop) might have occurred in the server instance that did not send the signal.
Verified timeout	If the heartbeat signal is not sent by the time calculated from [Protocol timeout] x [Protocol maximum retry], and is still not sent when the verified timeout time is exceeded, a ping request is sent.
ping timeout	This is the wait time from the sending of the ping request to check whether an abnormality (or stop) has occurred in the server instance until a response is received from the server instance.

The estimated time until the server instance is excluded from the group following the occurrence of an abnormality in the server instance or the stopping of the server instance is shown below. Perform tuning after checking the network load against the system requirement for the time for detection of abnormalities.

Estimated Time until the Server Instance is Excluded from the Group

[protoc timeout] x [protoc max retry] + [Verif timeout] + [ping timeout]

6.4 Interstage Java EE Admin Console Tuning

This section explains the Interstage Java EE Admin Console tuning.

The Interstage Java EE Admin Console runs on the Interstage Java EE DAS service, so refer to "[6.1 Interstage Java EE DAS Service Tuning](#)" as well.

6.4.1 Session Timeout

The session timeout initial value is 60 minutes.

The procedure for changing the session timeout value is shown below.

1. Change the session timeout value.

Use the Interstage Java EE Admin Console or the asadmin command to change the session timeout value.

- When the Interstage Java EE Admin Console is used

Change the session timeout value from the following window:

[Stand-Alone Instances] > [server (Admin Server)] > [Advanced]

- When the asadmin command is used

Change the session timeout value using the asadmin command set subcommand.

For details on the definition item names, refer to "asadmin", "Definition Items of the configs.config.admin-service" in the "Java EE Operation Commands" chapter.

2. Restart the service.

Windows32/64

Restart the Interstage Java EE DAS service.

Solaris32/64 Linux32/64

Execute the ijdasstop and ijdasstart commands to restart the Interstage Java EE DAS service.

6.4.2 Tuning the Maximum Size of the Uploaded File

At the time of the deployment (redemption) using the Interstage Java EE Admin Console, the default maximum file size for an application that can be uploaded is 100,000,000 byte.

To change this value, follow the procedure below:

1. Stop the Interstage Java EE DAS service.
2. Back up the file below, then set the maximum size of the uploaded file for the UploadFilter maxSize initialization parameter (to make it unlimited, set '-1'):

Windows32/64

```
C:\Interstage\F3FMisjee\lib\install\applications\admingui\adminGUI_war\WEB-INF\web.xml
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisjee/lib/install/applications/admingui/adminGUI_war/WEB-INF/web.xml
```

Example

Example: Changing the upper limit to 200,000,000 bytes:

```
<filter-name>UploadFilter</filter-name>
<filter-class>com.sun.webui.jsf.util.UploadFilter</filter-class>
<init-param>
  <param-name>maxSize</param-name>
  <param-value>200000000</param-value>
</init-param>
```

Example

Example: Making it unlimited:

```
<filter-name>UploadFilter</filter-name>
<filter-class>com.sun.webui.jsf.util.UploadFilter</filter-class>
<init-param>
  <param-name>maxSize</param-name>
  <param-value>-1</param-value>
</init-param>
```

3. Start the Interstage Java EE DAS service.

Note

Note the following points when increasing the maximum size of the uploaded file or making it unlimited.

- The deployment (redemption) of an application that has a large file size might take a while. Do not stop the Interstage Java EE DAS service or restart the machine during deployment (redemption) processing.
- Files that exceed 2GB cannot be deployed (redemption). Specify a file under 2GB and then deploy (redemption).

6.4.3 Port Number

The HTTP listener port used in the Interstage Java EE Admin Console must be the same as the Interstage Java EE DAS service operation management HTTP listener port.

The procedure for changing the HTTP listener port number is shown below.

1. Change the port number.

Use the Interstage Java EE Admin Console or the `asadmin` command to change the port number.

- When the Interstage Java EE Admin Console is used

Change the [Listener Port] value from the following window:

[Configurations] > [server-config] > [HTTP Service] > [HTTP Listeners] > [admin-listener] > [Edit HTTP Listener]

- When the `asadmin` command is used

Change the port number using the `asadmin` command set subcommand.

2. Restart the service.

Windows32/64

Restart the Interstage Java EE DAS service.

Solaris32/64 Linux32/64

Execute the `ijdasstop` and `ijdasstart` commands to restart the Interstage Java EE DAS service.

6.4.4 Using SSL Communication

The settings for using SSL communication in the Interstage Java EE Admin Console are the same as the settings for using Interstage Java EE DAS service operation management HTTP listener SSL communication.

The procedure for changing the settings for using SSL communication is shown below.

1. Change the settings for using SSL communication.

Use the Interstage Java EE Admin Console or the `asadmin` command to change the settings for using SSL communication.

- When the Interstage Java EE Admin Console is used

Change the [Security] setting from the following window:

[Configurations] > [server-config] > [HTTP Service] > [HTTP Listeners] > [admin-listener] > [Edit HTTP Listener]

- When SSL communication is used

Select the [Security] "Enabled" check box.

- When SSL communication is not used

Deselect the [Security] "Enabled" check box.

- When the `asadmin` command is used

Change the settings for using SSL communication using the `asadmin` command set subcommand.

For details, refer to "[Changing the Settings for Using Operation Management HTTP Listener SSL Communication](#)".

2. Restart the service.

Windows32/64

Restart the Interstage Java EE DAS service.

Solaris32/64 Linux32/64

Execute the `ijdasstop` and `ijdasstart` commands to restart the Interstage Java EE DAS service.

6.5 Tuning for Deployment

After the application has been deployed to the IJServer, and the IJServer cluster starts up, the Interstage Java EE Node Agent service starts the process required to unpack the resources required for the IJServer cluster startup.

If the maximum Heap size of this process is insufficient, an inconsistency may occur in the resources required for the IJServer cluster startup after their unpacking.

If the following Java VM option is specified, the maximum Heap size of the processes that is required to unpack the resources to start the IJServer cluster can be tuned.

Item	Java VM option
Maximum Java VM Heap size	-Xmx

The Java VM option for the process that unpacks the application can be changed using the Interstage Java EE Admin Console and the `asadmin` command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- "Interstage Java EE Node Agent Service Definition Items", "Node Agent additional property" in the "List of Definition Items" chapter

Procedure:

1. Specify `INSTANCE-SYNC-JVM-OPTIONS` of "Node Agent additional property" to set the Heap size for the process that extracts application. For details on how to do that, refer to "Definition Items of the node-agents" in the "Java EE Operation Commands" chapter.

Example:

```
asadmin set node-agent.ijna.property.INSTANCE-SYNC-JVM-OPTIONS=-Xmx256m
```

2. Restart the Interstage Java EE Node Agent service.

6.6 Web Container Tuning

Web Container Processing Flow

The web container receives requests from the client and processes them according to the following flow.

1. The web server receives a request from the client, and sends it to the web container via the web server connector.
2. The web container receives a request from the web server connector.
3. The request is stored in a HTTP connection queue temporarily.
4. Request processing threads monitor the HTTP connection queue at fixed intervals.
5. If there is a request in the HTTP connection queue, then the request processing thread processes it.

The above process can be tuned as follows:

- [Number of Simultaneous Processes](#) (Initial number of threads, Number of threads, Thread incrementation)
- [Number of Connections](#) (Maximum number of connections to the web container, Maximum store count, queue size)

Number 5 above is related to [Number of Simultaneous Processes](#) and this can be set as "Initial number of threads", "Number of threads" or "Thread incrementation".

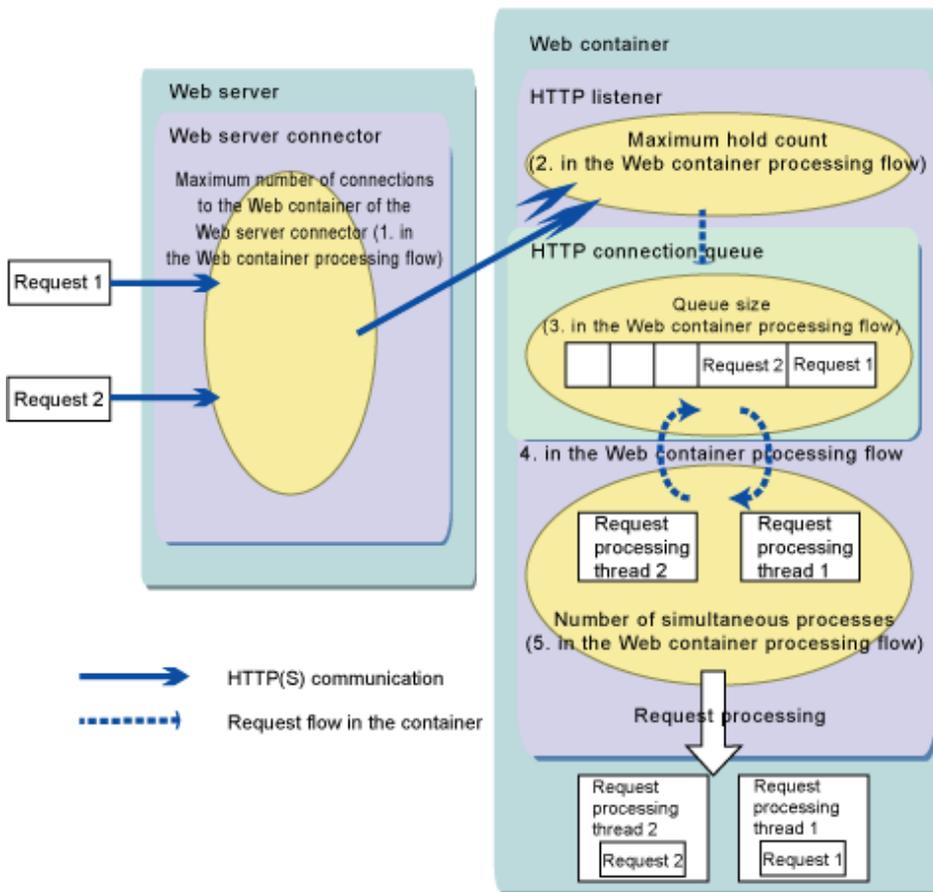
Numbers 1, 2 and 3 above are related to [Number of Connections](#).

Number 1 can be set as "Maximum number of connections to the web container".

Number 2 can be set as "Maximum store count".

Number 3 can be set as "queue size".

Details on the above items are provided below.



Number of Simultaneous Processes

When the number of simultaneous processes and the server instances are added, the simultaneous execution concurrency level for the web application can be increased.

When the number of simultaneous processes is increased, the execution concurrency level per single process can be increased, however this may not be effective because of the increase in load and resources that occurs as a result of the increase in the number of simultaneous processes.

Generally, a value that is equal to or less than the default value is recommended.

When tuning, also take in to consideration the following for EJB that is called from the application.

- [6.8.3 Enterprise Bean Instance Pooling](#)
- [6.8.2 Enterprise Bean Instance Caching](#)
- Number of JDBC Connections

The following can be set as the number of simultaneous processes:

- Initial number of threads
- Number of threads
- Thread incrementation

The number of simultaneous processes can be modified using [Settings] > [<cluster name>-config] or [server-config] > [HTTP service] > [Request processing] tab in the Interstage Java EE Admin Console and the asadmin command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- "Subcommands - Category: Referencing/Updating Definition Items" in the "Java EE Operation Commands" chapter

- "Definition Items of the configs.config.http-service" in the "Java EE Operation Commands" chapter, items:
 - "Thread count" (request-processing.thread-count)
 - "Initial thread count" (request-processing.initial-thread-count)
 - "Thread increment" (request-processing.thread-increment)

Number of Connections

The number of connections is set according to the differences in requests of the operating system as follows.

- Normal processing of all requests

Make the following settings when you want requests that cannot be processed due to high load on the web container, to process normally, regardless of the time it takes to do so.

Item	Value
Maximum number of connections to the web container, via the web server connector.	None (unlimited)
Maximum web container store count.	A value that is sufficiently large for receiving the expected number of requests.
Web container queue size.	A value that is sufficiently large for holding the expected number of requests that are waiting to be processed.

- Generating an error notification

Make the following settings when you want an error notification generated when requests cannot be processed due to a high load on the web container, where the request does not wait an extended length of time.

Item	Value
Maximum number of connections to the web container, via the web server connector.	The maximum number of requests that you want the web container to process.
Maximum web container store count.	A value that is sufficiently large for receiving the maximum number of requests.
Web container queue size.	The same value as the maximum number of web container connections.

The items that are set for number of connections are explained as follows.

Maximum Number of Connections

- When the web server and the web container are run on the same machine.

The maximum number of connections to the web container via the web server connector can be modified using [Cluster] or [Standalone Instance] > [cluster name] or [server instance name] > [Web server connector] tab in the Interstage Java EE Admin Console and the asadmin command. For details, refer to the following:

 - Interstage Java EE Admin Console Help
 - The "--maxprocessors" option in "update-web-server-connector-config Subcommand" in the "Java EE Operation Commands" chapter
- When the web server and the web container are run on different machines.

This is set on the machine that is used to run the web server.

This is set using the maximum number of web server connector connections from the Interstage Management Console. Additionally, it can be set using the isj2eeadmin command. For details, refer to the following:

 - Interstage Management Console Help
 - "isj2eeadmin" in the "J2EE Operation Commands" chapter of the Reference Manual (Command Edition),

Maximum Web Container Store Count

When the value for this item is increased, the number of requests that the web container can receive simultaneously can be increased. It is recommended that the number of simultaneous requests from the client that is specified assumes a high-load status during operation.

The maximum store count can be modified using [Settings] > [<cluster name>-config] or [server-config] > [HTTP service] > [Connection pool] tab in the Interstage Java EE Admin Console and the asadmin command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- "Subcommands - Category: Referencing/Updating Definition Items" in the "Java EE Operation Commands" chapter
- The "Maximum pending count" (connection-pool.max-pending-count) item in "Definition Items of the configs.config.http-service" in the "Java EE Operation Commands" chapter

Note

The value that is set for the maximum store count is set in backlog of Socket that is used by the web container. The enabled range for values set in backlog of Socket is determined by the OS, therefore it is not true to say that all values set for the maximum store count are enabled.

For details on the enabled range for backlog of Socket, refer the document for each OS.

In Windows (R), however, the value is not enabled if it is greater than 200.

Web Container Queue Size

When the value for this item is increased, the number of requests received from the client that are stored until the web container can process them can be increased.

If it is assumed that the load for operations will temporarily become higher and the number of requests received will exceed the number of simultaneous web container processes, overall server response deterioration can be prevented by controlling the number of simultaneous web container processes and setting a large value for the web container queue size.

- Settings point 1:
If the load is temporarily high at the time of operation so that the processing of requests from the client fails, and WEB1505 was output to the server log, increase the queue size.
- Settings point 2:
If the queue size is increased so that the queue is only sufficiently large enough to process requests, it may cause a delay in the response to requests from the client. Increase the web server connector send/receive timeout value.

The queue size can be modified using [Settings] > [<cluster name>-config] or [server-config] > [HTTP service] > [Connection pool] tab of the Interstage Java EE Admin Console and the asadmin command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- "Subcommands - Category: Referencing/Updating Definition Items" in the "Java EE Operation Commands" chapter
- The "Queue size" (connection-pool.queue-size-in-bytes) item in "Definition Items of the configs.config.http-service" in the "Java EE Operation Commands" chapter

Web Server Connector Send/receive Timeout

- When the web server and the web container are run on the same machine.
This can be modified using [Cluster] or [Standalone Instance] > [cluster name] or [server instance name] > [Web server connector] tab in the Interstage Java EE Admin Console and the asadmin command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- The "--sendreceivetimeout" option in "update-web-server-connector-config Subcommand" in the "Java EE Operation Commands" chapter

- When the web server and the web container are run on different machines.

This is set on the machine that is used to run the web server.

This is set using the web server connector send/receive timeout from the Interstage Management Console. Additionally, it can be set using the isj2eeadmin command. For details, refer to the following:

- Interstage Management Console Help
- "isj2eeadmin" in the "J2EE Operation Commands" chapter of the Reference Manual (Command Edition),

Keep Alive

The settings relating to "keep alive" are explained below.

Whether Keep Alive is Enabled/Disabled, and the Number of Requests that can be Processed in One Connection

In this item, whether keep alive is enabled/disabled, and the number of requests that can be processed in one connection, is set.

If "Disable" is specified, the connection is closed whenever one request is complete, and a new connection is executed for the next request. If "Enable" is specified, an HTTP connection is established after the web container returns a response, until the next request is received. This improves request transfer efficiency.

The initial value is "Disable".

To link with a load balancer such as IPCOM, it will be necessary to configure the same settings as the load balancer keep alive feature settings. For details, refer to the load balancer manuals.

Whether keep alive is enabled/disabled, and the number of requests that can be processed in one connection, can be changed from [Configurations] > [cluster-config] or [server-config] > [HTTP Service] > [Additional Properties] (Interstage Java EE Admin Console) or from the "maxKeepAliveRequests" property (asadmin command). For details, refer to the following:

- Interstage Java EE Admin Console Help
- "Subcommands - Category: Referencing/Updating Definition Items" in the "Java EE Operation Commands" chapter
- The "Number of requests which can be processed in one connection" (property.maxKeepAliveRequests) item in "Definition Items of the configs.config.http-service" in the "Java EE Operation Commands" chapter

Keep Alive Timeout

This represents the time that the keep alive connection is kept open, from when the web container returns a response, until the next request is received. Set the timeout according to the client keep alive timeout specification.

For example, if a request is received on the basis that the client is connected to the server, set a value that exceeds the client timeout.

Set keep alive timeout to at least 11 seconds.

The keep alive timeout can be changed using the asadmin command. For details, refer to the following:

- "Subcommands - Category: Referencing/Updating Definition Items" in the "Java EE Operation Commands" chapter
- The "Keep alive timeout" (keep-alive.timeout-in-seconds) item in "Definition Items of the configs.config.http-service" in the "Java EE Operation Commands" chapter



When the keep alive setting is "Disable", the connection will be broken after each individual request, therefore TCP/IP resources (ephemeral ports) will be consumed even more in the client (for operations using the web server/web server connector, this will include the machine that is used to run the web server).

If many requests are made in a short space of time, the TCP/IP resources may be depleted.

If necessary, either "Enable" the keep alive setting, or refer to "Tuning TCP/IP Parameters" in the "System Tuning" chapter of the Tuning Guide, and tune the TCP/IP parameters.

6.7 Session Recovery Tuning

When using session recovery, estimate the Java heap size as shown below.

When the Session Recovery (Session Registry Server) is used

Estimate using the formulae shown below. Add the IJServer cluster Java heap size that was estimated in "Java VM Heap and Permanent Area Size". (Unit: MB)

Windows32

$$35 + (0.4 \times k) + (0.05 \times a) + ((0.001 + 0.05 \times d + d) \times s) \times 2$$

Windows64

$$90 + (0.4 \times k) + (0.05 \times a) + ((0.001 + 0.05 \times d + d) \times s) \times 2$$

Solaris32/64

$$80 + (0.4 \times k) + (0.05 \times a) + ((0.001 + 0.05 \times d + d) \times s) \times 2$$

Linux32/64

$$70 + (0.4 \times k) + (0.05 \times a) + ((0.001 + 0.05 \times d + d) \times s) \times 2$$

k: Session registry server concurrency

a: Number of web applications (deployed to the IJServer cluster)

d: Data size maintained by the session =

Total size of the objects and the keys which are set in the session attribute by the web application

s: Number of sessions

Example

On the target IJServer cluster, the number of concurrent processes is 64, there is one web application, the data volume stored in the session is 2KB, and the number of sessions is 1000.

Windows32

$$35 + (0.4 \times 64) + (0.05 \times 1) + ((0.001 + 0.05 \times 0.002 + 0.002) \times 1000) \times 2$$

$$= 66.85$$

Windows64

$$90 + (0.4 \times 64) + (0.05 \times 1) + ((0.001 + 0.05 \times 0.002 + 0.002) \times 1000) \times 2$$

$$= 121.85$$

Solaris32/64

$$80 + (0.4 \times 64) + (0.05 \times 1) + ((0.001 + 0.05 \times 0.002 + 0.002) \times 1000) \times 2$$

$$= 111.85$$

Linux32/64

$$70 + (0.4 \times 64) + (0.05 \times 1) + ((0.001 + 0.05 \times 0.002 + 0.002) \times 1000) \times 2$$

$$= 101.85$$

The session registry server runs on the Java VM, therefore the actual Java heap size will vary depending on the load and the operational status of GC.

For this reason, it is recommended that you estimate by measuring the exact memory usage, as shown below:

- Run the Java VM according to the same conditions as peak time in your production environment. If there is insufficient memory for the Java VM to use, a message will be output to the event log/system log, therefore increase the maximum value for the Java heap size by setting an optimal value. The maximum value for the Java heap size that was invoked will be used as is, as the value for the production environment.

Note that session recovery (session registry server) can be operated in Interstage Application Server Enterprise Edition.

When the Session Recovery (Session Registry Client) is used

Estimate using the formula shown below. Add the IJServer cluster Java heap size that was estimated in "Java VM Heap and Permanent Area Size". (Unit: MB)

$$(0.001 + 0.05 \times d + d) \times s$$

d: Data size maintained by the session =

Total size of the objects and the keys which are set in the session attribute by the web application

s: Number of sessions

Note that session recovery (session registry client) can be operated in Interstage Application Server Enterprise Edition and Interstage Application Server Standard-J Edition.

6.8 EJB Container Tuning

Points to consider when tuning the EJB container are explained below.

6.8.1 Thread Pooling

If a request was issued simultaneously to an Enterprise JavaBean from the client, the EJB container executes the request in a separate thread and performs parallel processing.

The processing of a thread create will affect response times, therefore the thread is re-used within the thread pool.

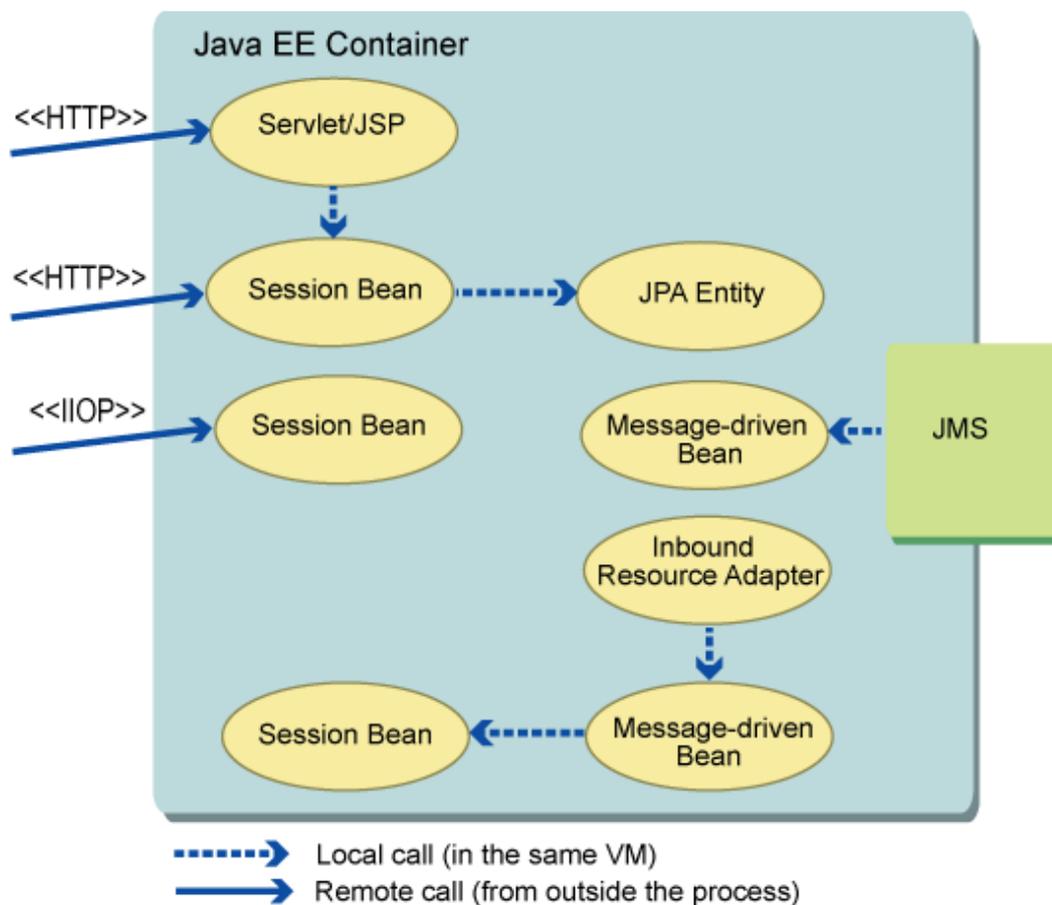
The following types of tuning can be performed for thread pooling.

- Control of the number of simultaneous EJB application processes
- Prioritize requests

Thread control methods differ depending on the Enterprise JavaBean access pattern. The relationship between the Enterprise JavaBean access pattern and thread control is explained below.

Relationship Between the Access Pattern and Thread Control

The Enterprise JavaBean access patterns are as follows.



Access Patterns for Thread Control by the EJB Container

In the following cases, the EJB container performs thread control using the thread pool.

- When a request to an Enterprise JavaBean is issued by RMI-IIOP remote access.
- When a JMS message is received and executed by a Message-driven Bean.

- When a resource adapter message is received and executed by a Message-driven Bean.

Access Patterns on Call Source Threads

When there is a call in the following Java VM, the access is on the call source thread.

- Calls between EJB
- An EJB call from a Servlet/JSP
- An EJB call from the web service
- Operations for JPA Entity

For details on thread tuning using HTTP communication access, refer to "[6.6 Web Container Tuning](#)" and "[6.10 Web Service Tuning](#)".

Access Patterns on Resource Adapter Threads

For a message-driven bean that receives resource adapter messages, the message listener method runs on the thread created by the resource adapter.

Control of the Number of Simultaneous EJB Application Processes

When the IJServer cluster process starts up, threads of the minimum pool size for the thread pool are created and stored in the pool.

Before request processing starts, the pool is searched for. If there are no threads in the pool, the thread is created and the request executed.

After processing is complete, the created thread is returned to the pool without being deleted. The current number of threads will be the maximum pool size of the thread pool. If a request is delivered to the pool when there is no thread, the thread puts the request in a queue and stands by until it returns to the pool.

Request Priority

In EJB applications in which remote access is performed using RMI-IIOP, the number of simultaneous processes can be controlled per EJB application by creating the thread pool and then specifying the maximum number of pools.

By assigning an individual thread pool to an EJB application, the EJB application can be executed according to a higher priority level than other remote access target EJB applications. Since an EJB application that has been assigned to an individual thread pool can be executed in a stand-alone thread pool even if the request for the other EJB application is queued in the thread pool, it can be executed according to a higher priority.

Thread Pool Settings

The thread pool tuning items are explained as follows.

Tuning item	Meaning	Effect
Minimum pool size	This is the initial number and minimum number of thread pools. It is the number of threads that are created when the IJServer cluster starts up.	The response time can be reduced by specifying the number of requests that will be assumed to be issued simultaneously.
Maximum pool size	This is the maximum value for the thread pool. When the maximum value for the thread is used, the thread is not created even though the request is issued, and the request is placed in a queue until the thread is available.	Memory and resources used by the thread pool can be controlled by the maximum value for the thread pool.
Idle Timeout	This is the maximum time (in seconds) that threads in the pool can be in idle status. When this period is exceeded, the thread is discarded. The number of threads that match the minimum value continues to be pooled, however, therefore these threads are not discarded. Additionally, the threads are deleted when the IJServer cluster process stops.	Memory and resources can be optimized by discarding excessive threads that are no longer necessary.

In EJB applications in which remote access is performed using RMI-IIOP, if an individual thread pool has been defined, then that thread pool will be used, otherwise, the default thread pool provided will be used.

The default thread pool is also used in the features shown below. For this reason, too many requests to the EJB application will cause a wait for an unused thread, and delays or periods without response might occur.

- Execution of the callback method using the EJB Timer service
- Execution of passivate processing using Enterprise Bean instance caching
- Execution of pool reduction and extension processing using Enterprise Bean instance pooling
- Execution of work for a resource adapter for which the thread pool ID has not been defined
- Processing for receiving requests when an EJB application of a separate process was called

In EJB applications in which remote access is performed using RMI-IIOP, a separate thread pool to the default thread pool must be created (for details, refer to "[Creating the Thread Pool](#)") and the thread pool settings in each Enterprise Bean must be configured (for details, refer to "[Thread Pool Settings in each Enterprise Bean](#)").

The initial value for the default thread pool is "thread-pool-1". Do not delete this thread pool.

Estimate the maximum pool size for each Enterprise Bean thread pool as follows:

```
Maximum pool size = Assumed maximum client concurrency level (*1)
```

```
*1 This is the assumed thread concurrency level total.
```

Estimate the maximum pool size for the default thread pool (thread-pool-1) as follows. If the value is less than 200, make this 200 (the default).

```
Maximum pool size=Number of EJB timer service timers
                    +Number of Enterprise Beans
                    +Work number for the resource adapter (*1)
                    +Number of assumed simultaneously connected client processes
                    +Assumed maximum client concurrency level (*2)
                    +Number of call destination IJServer cluster processes (*3)
```

```
*1: This is only resource adapters for which a thread pool ID has not been defined.
```

```
*2: This is total assumed thread concurrency.
```

```
*3: This is the number of call destination IJServer cluster processes when other IJServer cluster EJB
applications were called.
```

Creating the Thread Pool

The thread pool can be created using the Interstage Java EE Admin Console and the `asadmin` command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- "create-threadpool Subcommand" in the "Java EE Operation Commands" chapter

The value set for the thread pool can be changed using the Interstage Java EE Admin Console and the `asadmin` command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- "Definition Items of the `configs.config.thread-pools`" in the "Java EE Operation Commands" chapter

Thread Pool Settings in each Enterprise Bean

Specify the thread pool that was created in the Interstage deployment descriptor of the EJB application that will be used. For details, refer to the following:

- The "`<use-thread-pool-id>`" tag in "Interstage EJB Application deployment descriptor (`sun-ejb-jar.xml`)" in the "Java EE Application Development" chapter

6.8.2 Enterprise Bean Instance Caching

In Stateful Session Bean, the same instance is used from the initial client access until the Remove request and an interactive status with the client is stored, therefore the amount of memory used is great compared with other Enterprise Beans. To control amount of memory used, therefore, the cache time and number can be reconciled for Bean instances for which no requests have been executed.

The Stateful Session Bean instance lifecycle is explained in the EJB specifications. The EJB container stores method ready state Bean instances in the cache. When a request for the Bean business method from the client is received again, the EJB container obtains the Bean instance from the cache, executes the method, then returns the instance to the cache after the method execution is complete. If a request for the same Bean is received again, the container obtains the corresponding Bean instance from the cache, then returns the instance to the cache after the method execution is complete.

When a Remove request is issued for the Bean from the client, the Bean instance is removed from the cache and destroyed.

In the Stateful Session Bean, the Bean instance caching can be changed using the following tuning item.

Tuning item	Effect
SFSB persistence type	When set to 'none', the Bean instance is not stored in the file system, therefore, there is no need to remove unnecessary files. When set to 'file', Bean instances stored in the cache but not used for a long time, will be passivated in the file system, therefore unnecessary increases in memory can be prevented. However, passivated files must be removed by the user.

For details on how to set SFSB persistence type to 'file', refer to ["Notes on Operations when the SFSB Persistence Type is 'file'".](#)

SFSB persistence type can be set for each IIServer cluster individually. This setting can be changed using the Interstage Java EE Admin Console and the asadmin command. For details, refer to "EJB Container Definition Items" in the "List of Definition Items" chapter.

Cache Settings

The behavior of the caching tuning item will vary depending on the SFSB persistence type tuning item setting.

The tuning items that control the caching functionality are explained in the following table.

Tuning item	Effect
Maximum cache size	By setting this to the number of clients that will access simultaneously, the memory usage can be reduced.
Change in cache size	Memory consumption can be reduced by the quick discarding of instances that are no longer necessary once the request peak has ended. This setting is only enabled when the SFSB persistence type is 'file'.
Cache Idle Timeout	If the client forgets to issue a Remove request for the Bean, unnecessary Bean instances are cleared automatically, therefore unnecessary memory increases can be prevented.
Delete timeout	Unnecessary Bean instances that have not been used for a long time are cleared, therefore resources can be optimized. This setting is only enabled when the SFSB persistence type is 'file'.
Delete policy for selected contents	By matching the deletion policy with the Bean usage pattern, Bean instances that have a low usage frequency can be removed from the cache when the SFSB persistence type is 'none'. Additionally, performance deterioration caused by passivate and activate processing for Bean instances that are frequently used when the SFSB persistence type is 'file', can be reduced.

The location for saving instances passivated by the EJB container can be modified using the following tuning item:

Tuning item	Effect
Session storage location	By specifying a disk drive with plenty of space to optimize resource deployment or a disk drive with fast file I/O, for example, the operation speed for changing Bean instances to files can be improved. This setting is only enabled when the SFSB persistence type is 'file'.

For details on the default storage location and directory structure, refer to "IJSERVER Cluster File Configuration" in the "Functionality Provided in the Java EE Application" chapter. Files are created for each passivated Bean instance individually, and are removed when the Bean is activated, at the removal timeout, or when the IJSERVER cluster is removed.

The cache tuning settings can be specified in each Enterprise Bean. For details on definitions, refer to the following:

- The "<ejb>" "<bean-cache>" tags in "Interstage EJB Application deployment descriptor (sun-ejb-jar.xml)" in the "Java EE Application Development" chapter

If the Enterprise Bean cache settings are not specified, the IJSERVER cluster value is used. This value can be modified using the Interstage Java EE Admin Console and the `asadmin` command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- "Definition Items of the `configs.config.ejb-container`" in the "Java EE Operation Commands" chapter



Note

In the Interstage Java EE DAS service, the SFSB persistence type is set to 'none' and cannot be changed.

Notes on Operations when the SFSB Persistence Type is 'none'

- The EJB container will remove all cached Bean instances when the IJSERVER cluster is stopped.

Notes on Operations when the SFSB Persistence Type is 'file'

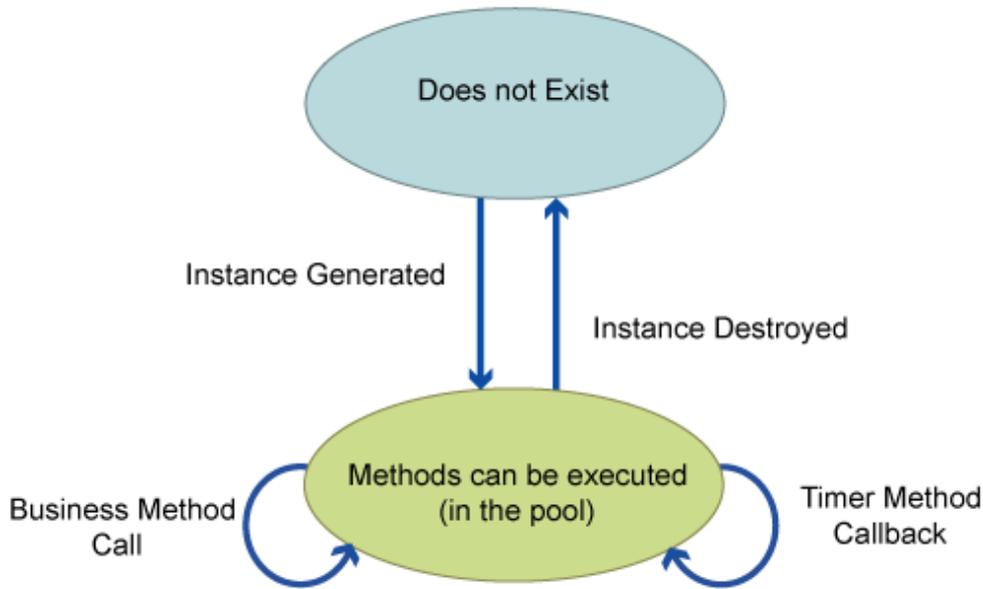
- If the Stateful Session Bean was undeployed when the IJSERVER cluster was in a stopped state, the resources under "Session storage location" will not be deleted. At this time, delete the resources after the application was undeployed.
- If the Stateful Session Bean was undeployed when the IJSERVER cluster was in a started state, the resources under "Session storage location" will be deleted. Do not delete the resources under "Session storage location" when the IJSERVER cluster is in a started state.
- When the Bean instance is passivated, it is serialized and then stored in the file system. For this reason, it will be necessary for objects that are referenced from the Bean instance to be able to be serialized (by implementing the `java.io.Serializable` interface, for example). If the Bean instance cannot be serialized, the `java.io.NotSerializableException` exception occurs and the passivation fails, so the Bean instance will be removed.
- The EJB container will passivate all cached Bean instances when the IJSERVER cluster is stopped. If the IJSERVER cluster is stopped by force, then the EJB container closes without passivating the cached Bean instances.

6.8.3 Enterprise Bean Instance Pooling

By generating the Bean instance before a request is received from the client, the instance generation processing time at access is reduced, and processing performance is improved. The Enterprise Bean instance pooling function is used in the following Enterprise Beans:

- Stateless Session Bean
- Message-driven Bean

The Stateless Session Bean and Message-driven Bean instance lifecycle and pool are explained as follows:



In Stateless Session Bean, when a request from the client is received by the Bean, the EJB container obtains one Bean instance from the pool and executes the business method to that instance. In Message-driven Bean, when a message is received, the Bean instance is obtained from the pool and the message listener method executed for the instance in the same way. Once execution is complete, the instance is returned to the pool.

In EJB Timer callback processing, the instance is obtained from the pool, the timer callback method executed, and the instance returned to the pool once execution is complete.

The tuning items that control the pooling functionality are explained in the following table.

Tuning item	Effect
Initial and Minimum pool size	By generating the instance in advance so that it can be executed immediately using the pooled instance, processing performance is improved.
Maximum pool size	The amount of memory used can be controlled using the maximum pool value.
Change in pool size	Even when there are insufficient instances having methods of executable status because of a sudden increase in the number of requests from the client, by immediate extension of the pool size, response delays because of instance generation processing can be reduced.
Pool Idle Timeout (*1)	Memory can be optimized by discarding excessive instances that are no longer necessary.

*1 The pool monitor is executed according to the interval that was specified for this value. Once it has been executed after startup, however, it checks the EJB application usage status and does not adjust the pool size for Bean instances that have not been used.

Note

Message-driven Bean receives messages using an instance for each session. For this reason, the order in which the messages are processed cannot be guaranteed if 2 or more is set for the maximum pool value.

The pool settings can be specified in each Enterprise Bean. For details on definitions, refer to the following:

- The "<ejb>" "<bean-pool>" tags in "Interstage EJB Application deployment descriptor (sun-ejb-jar.xml)" in the "Java EE Application Development" chapter

If the Enterprise Bean cache settings are not specified, the JJSERVER cluster value is used. This value can be modified using the Interstage Java EE Admin Console and the asadmin command. For details, refer to the following:

- Interstage Java EE Admin Console Help

- "Definition Items of the configs.config.ejb-container" or "Definition Items of the configs.config.mdb-container", both in the "Java EE Operation Commands" chapter

6.8.4 Functionality that Prevents Data Copying Using Remote Access in the Same Java VM

When the Enterprise Bean remote business interface is accessed, copies of the values for the business method argument and return value are forwarded, even when the access is in the same Java VM. For this reason, even when the argument value is modified in the call destination and the returned value is modified in the call source, it does not affect the values that are copied for the call destination and call source.

If Enterprise Bean is accessed via IIOP from outside the Java VM, copies of the values for the business method argument and return value are always forwarded in order to standardize the specs for when they are called in the same Java VM and via IIOP from outside the Java VM. The specs are standardized, therefore the versatility of the application is improved.

The creation of the copy for the value means high overheads and affects performance, however. If the forwarded value is not modified, there is no difference in behavior even when the value reference is forwarded.

When the Enterprise Bean remote business interface is accessed again in the same Java VM, the access performance of the method can be improved by modifying it so that the reference is forwarded without the argument and return value being copied.



See

For details on the definitions of this functionality, refer to the following:

- The "<sun-application>" "<pass-by-reference>" tags in "Interstage Application deployment descriptor (sun-application.xml)" in the "Java EE Application Development" chapter
- The "<ejb>" "<pass-by-reference>" tags of "Interstage EJB Application deployment descriptor (sun-ejb-jar.xml)" in the "Java EE Application Development" chapter

6.9 JPA Tuning

JPA is often used by OLTP type (in which there are many data searches, but few updates) Java EE applications. The Interstage persistence provider can improve performance by caching the data that was searched in the database.

The Interstage persistence provider tuning options include an option that caches Entity instance created from data searched for in the database. Execute JDBC connection pool or database tuning accordingly.

The following cache types can be used.

- [Persistence Context Cache](#)
- [Shared Persistence Unit Cache](#)

Each cache type is explained as follows.

6.9.1 Persistence Context Cache

When the Entity is obtained from the database using Entity Manager, or the created Entity is merged with the persistence context, the Entity instance is stored in the Persistence context cache. The lifecycle of this cache is the same as for the persistence context.

The characteristics of the Persistence context cache are explained as follows.

Find Method

When the Entity is searched for using the Entity Manager find method, firstly it is searched from the Persistence context cache.

If it is in the cache, it is returned to the cached instance without querying the database. If it is not in the cache, "[6.9.2 Shared Persistence Unit Cache](#)" is searched. If it is not in the shared cache either, an SQL statement is issued and a query made to the database. If the search was successful, the Entity instance is stored in the Persistence context cache and returned to the application.

Query Method

When the JPQL query method is executed using the Entity Manager, an SQL statement is issued and the database searched. If a record is found, however, check whether the same primary key Entity as the record already exists in the Persistence context cache.

If it exists, the cached instance is returned to maintain updates performed in the current persistence context and the compatibility of the relationship between Entities.

If it does not exist, the shared persistence unit cache is searched. If it is not in the shared cache either, an SQL statement is issued and a query made to the database. If the search was successful, the Entity instance is stored in the Persistence context cache and returned to the application.

Update, Merge, and Deletion of Entity Instances

The update and deletion of managed Entity instances, or merging with non-managed status Entity instance persistence context is reflected in the Persistence context cache.

Inconsistencies with Database Records

When an operation is executed using the Entity Manager, and the same database record is updated either in the same or another transaction using an access method that is not the Entity Manager, then an inconsistency might occur between the Entity instance managed in the persistence context cache and the database record.

To prevent this, explicitly execute the flush or update of the Entity data for the Entity Manager operation where necessary.

For details on how to flush the entity manager operation, refer to the JPA terms. The methods used to update the Entity data are explained in the sub-sections below.

Updating Entity Data

The following methods can be used to obtain the latest data for Entity instance persistence fields from the database.

Executing the Entity Manager refresh method

When the Entity instance is specified in the Entity Manager refresh method and this method executed, an SQL statement is issued and the latest record data obtained. The latest data is reflected in the Entity instance and the Persistence context cache is also updated.

Using Interstage persistence provider query hints in the JPQL query method

When the refresh hint is specified in the JPQL query and the query method executed, a query is made to the database without the Persistence context cache and shared cache being searched for. If the search was successful, the record is obtained, the copy of the Entity instance created, the copy stored in the shared cache, and the original Entity instance returned to the application. If the Entity already exists in the Persistence context cache, the existing object will be non-managed status, and corrections that have not been flushed are not updated in the database. If the Entity already exists in the shared cache, the existing object is overwritten by the new object.



Note

Notes about the data update functionality are explained as follows.

- When the Entity Manager refresh method is executed

- When the container management Entity Manager is used, this method can only be executed during the transaction, therefore the transaction must be started even for operations which there is no data update.
- An SQL statement is also issued when the Entity instance specified in the refresh method is obtained, therefore the database is accessed twice.

- When Interstage persistence provider query hints are used

- Updates already performed in the persistence context and the compatibility of the relationship between Entities cannot be maintained.
- Because of the unique functionality of the Interstage persistence provider, the corresponding hints may not exist in other persistence providers, which will affect porting.

The refresh functionality is specified using the following query hints.

Query hint name	Value (Bold: Default value)	Explanation
toplink.refresh	True	The database is searched without a query being made to the cache. The copy of the Entity that was searched for is created and stored in the shared cache. The original Entity instance is returned to the application.
	False	The database search result is compared with the Entity in the cache. If it already exists, the cached Entity instance is returned to the application.
toplink.refresh.cascade	CascadeAllParts	The Entity that was searched for is refreshed. If an Entity that has a relation with this Entity is contained in the search result, that Entity is refreshed.
	CascadeByMapping	The Entity that was searched for is refreshed. The Entity in which CascadeType.REFRESH or CascadeType.ALL are specified in the relation cascade definition is also refreshed. Other relation Entity instances are not refreshed.
	NoCascading	The searched Entity is refreshed, however if an Entity instance that has a relation with this Entity instance exists in the cache, the cached object is returned without refreshing the data.

Note

- Values are not case-sensitive.
- To enable the topleink.refresh.cascade hint settings, true must be specified for the topleink.refresh hint.

The query hint is specified in the mapping definition file deployment descriptor (orm.xml) query-hint tag, annotation (@QueryHint), or Query.setHint method.



Example

An example of the refresh hint definition is as follows.

```
@NamedQuery(name="Order.findOrdersByPK",
    query="SELECT o FROM Order o WHERE o.id = :id",
    hints={@QueryHint(name="toplink.refresh",
        value="true"),
        @QueryHint(name="toplink.refresh.cascade",
            value="CascadeAllParts")})
```

6.9.2 Shared Persistence Unit Cache

The persistence unit manages shared cache in each Entity class. This cache can be referenced from all persistence contexts.

The lifecycle of this cache is the same as for the persistence unit, therefore it is used from when the Entity Manager factory is created until it is closed.

The shared persistence unit cache characteristics are explained as follows.

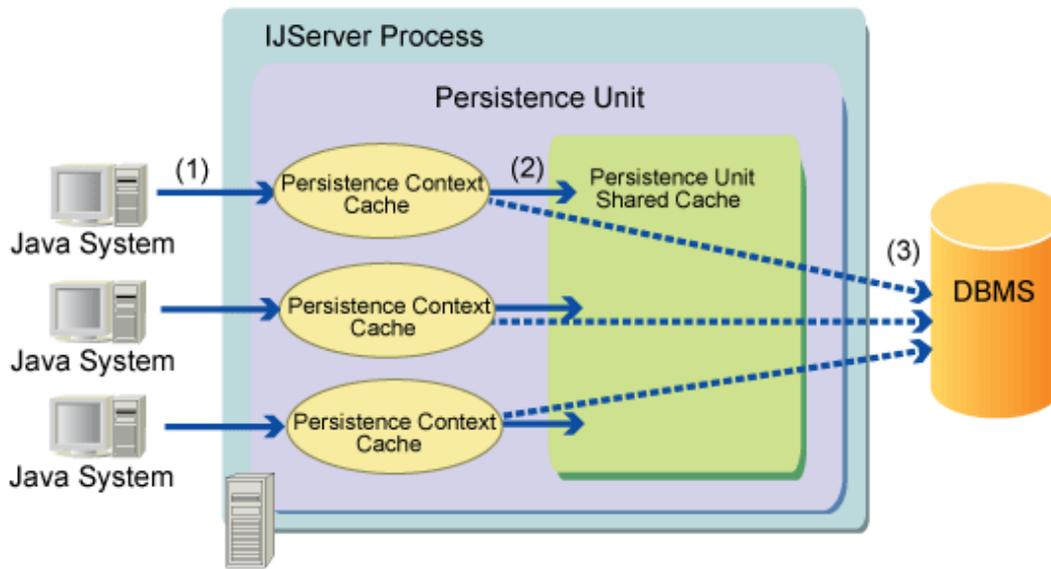
Shared Cache Reference Timing

For details on the shared cache reference timing, refer to "6.9.1 Persistence Context Cache".

Shared Cache Update Timing

When the persistence context is closed, Entity instances in the cache are copied and merged with the shared cache.

A relationship diagram for the Persistence context cache and shared cache and the search order is as follows.



1. When the search method is executed following a request from the client, firstly the Persistence context cache is searched.
2. If it is in the Persistence context cache, the Entity instance is returned. If it is not in the Persistence context cache, the shared cache is searched.
3. If it is in the shared cache, a copy of the Entity instance is created, the copy stored in the Persistence context cache, and returned to the application. If it is not in the shared cache either, a query is made to the database.

In data update, in order to maintain compatibility between the data in the shared cache and the database data, use the cache functionality together with the line lock functionality. For details on the line lock functionality, refer to "Lock Functionality for the Line" in the "Functionality Provided in the Java EE Application" chapter.

Shared Cache Release Timing

Entity instances stored in the shared cache are released at the point when the Entity Manager factory is closed. When the container management Entity Manager is used, the Entity Manager factory is closed when the application stops. The Entity instance is discarded by Garbage Collection ('GC') according to the tuning settings.

The options that control the GC target timing for Entity instances stored in the shared cache are explained as follows.

This persistence unit property is specified in the deployment descriptor (persistence.xml) or javax.persistence.Persistence.createEntityManagerFactory(String, Map) method.

Property name	Value (Bold: Default value)	Explanation
toplink.cache.type.<ENTITY>	- Full	This is a shared cache type for a specific Entity
toplink.cache.type.default	- Weak - HardWeak - SoftWeak	This is another Entity shared cache type
toplink.cache.size.<ENTITY>	0-MAX_INTEGER Default value: 1000	This is the shared cache type size for a specific Entity
toplink.cache.size.default		This is the shared cache type size for another Entity
toplink.cache.shared.<ENTITY>	- true - false	The shared cache for the specific Entity is enabled/disabled

Property name	Value (Bold: Default value)	Explanation
Toplink.cache.shared.default		The shared cache for the other Entity is enabled/disabled

Note

Values are case-sensitive.

The Entity name or the Entity class name that includes the package name is described in <ENTITY> of the property. For an Entity that is not defined, the property settings in which default is described, or the default value are used.

To always obtain the latest information from the table without updating the field, the shared cache is disabled, however there is usually no need to disable the shared cache.

If the shared cache for the specific Entity is disabled, disable the shared cache of the Entity that has a relationship with this Entity in order to maintain data consistency.

Each shared cache type is explained as follows.

Cache type	Meaning	Recommended conditions
Full	Entity is not flushed from the memory unless it is deleted. The selected cache size is used as the initial size, and there are no UPPER size settings.	This is used when there is little data but large amounts of memory.
Weak	By referencing the Entity instance using the Weak reference (java.lang.ref.WeakReference), the amount of memory used is less than Full. The selected cache size is used as the initial size, and there are no UPPER size settings.	When there are no more object reference in the Java VM, Entity instances may be discarded by GC, therefore transactions that have started are only used if they are continued in the server.
HardWeak	Similar to Weak, however it also has a sub cache for reference to the Hard reference. If the sub cache size is exceeded, Entity instances for which usage frequency is low are moved from the sub cache to the cache that uses the Weak reference. The specified cache size is the maximum number of Entity instances that are stored in the sub cache.	Hard reference Entity instances are not discarded, therefore the value set for the maximum number of cached instances is the same as the maximum number of Entity instances that are referenced during the transaction.
SoftWeak	This is almost the same as HardWeak, however the Soft reference (java.lang.ref.SoftReference) is used in the sub cache. The specified cache size is the maximum number of Entity instances that are stored in the sub cache.	This type is used in normal environments. The value set for the maximum number of cached instances is the same as the maximum number of Entity instances that are referenced during the transaction. If objects cached in the sub cache of the application operation are frequently discarded by GC, investigate using HardWeak.

 **Example**

An example of the shared cache type definition is as follows.

```
<persistence xmlns="http://java.sun.com/xml/ns/persistence"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/persistence
    http://java.sun.com/xml/ns/persistence/persistence_1_0.xsd"
  version="1.0">
  <persistence-unit name="com.company.my.pu">
```

```
<jta-data-source>jdbc/myDatasource</jta-data-source>
<properties>
  <property name="toplink.cache.type.CountryCode" value="Full"/>
  <property name="toplink.cache.size.CountryCode" value="100"/>
  <property name="toplink.cache.shared.StockQuote" value="false"/>
  <property name="toplink.cache.size.default" value="200"/>
</properties>
</persistence-unit>
</persistence>
```

6.10 Web Service Tuning

In the web service, the tuning of the number of simultaneous web container processes and the number of connections, for example, is enabled. For details on these settings, refer to "[6.6 Web Container Tuning](#)".

Additionally, when the endpoint is Stateless Session Bean, tuning of the EJB container instance pool is also enabled. For details on instance pool tuning, refer to "[6.8.3 Enterprise Bean Instance Pooling](#)".

6.11 Tuning the Database Linkage Environment

The physical database connection is managed in a pool and shared in the application. If there is a connection request from the application, the application server obtains a connection from the connection pool and returns it to the application. Additionally, when the application releases the connection, the application server returns that connection to the pool. The following tuning is possible for this JDBC connection pool:

- [Number of Connections in the Pool](#)
- [Connection Verification](#)
- [Transaction Management](#)
- [Detail Attributes](#)

Tuning for each item can be set using [JDBC] > [Connection pool] of the Interstage Java EE Admin Console and the asadmin command. For details, refer to the following:

- [Interstage Java EE Admin Console Help](#)
- "Subcommands - Category: Referencing/Updating Definition Items" in the "Java EE Operation Commands" chapter
- "create-jdbc-connection-pool Subcommand" in the "Java EE Operation Commands" chapter
- "Definition Items of the resources.jdbc-connection-pool" in the "Java EE Operation Commands" chapter

Additionally, update definition items in Detail attributes after the JDBC connection pool has been created.

6.11.1 Number of Connections in the Pool

The following can be set to tune the number of connections in the JDBC connection pool.

Pool size scaleup is executed where necessary, when a connection request is received from the application. Pool size scaledown is executed periodically, at fixed intervals.

Pooled connections are deleted when the IJServer cluster or Interstage Java EE DAS service is stopped.

- Initial and Minimum pool size
- Maximum pool size
- Change in pool size
- Idle Timeout
- Maximum wait time

The tuning of these items can be configured using the Interstage Java EE Admin Console or the asadmin command.

- When the Interstage Java EE Admin Console is used

The settings can be configured in the following window:

- [Resources] > [JDBC] > [Connection Pools] > [General]

For details, refer to the Interstage Java EE Admin Console Help.

- When the asadmin command is used

When creating the JDBC Connection Pool, refer to "asadmin", "create-jdbc-connection-pool Subcommand" in the "Java EE Operation Commands" chapter.

When updating the JDBC Connection Pool item, refer to "asadmin", "Definition Items of the resources.jdbc-connection-pool" in the "Java EE Operation Commands" chapter.

The pool size scaledown and scaleup behavior is explained below.

Regular Pool Monitoring (Pool Size Scaledown)

In the application server, the connection pool status is monitored regularly for the performance of pool resizing. Resizing for pool monitor use is scheduled according to the following mechanisms, and the resize task executed according to the Idle Timeout interval.

- When the pool is initialized (*1)
- If connection trouble was detected when the "In all trouble" settings are enabled (*2)

*1 The pool is initialized when the IJServer cluster or Interstage Java EE DAS service receives the first connection request from the application.

*2 For details on conditions considered as connection trouble, refer to "[6.11.2 Connection Verification](#)".

In pool resize task, all illegal connections where Idle Timeout or Connection verification fails are removed from the pool, and an attempt is made to scale down the size to a range in which the Change in pool size is not exceeded. Depending on the number of illegal connections, only connections for which the Change in pool size is exceeded may be deleted. If the minimum value pool size in the deletion result is breached, the connection is complemented until the minimum value is reached.

Specifically, processing is executed according to the following procedure. The following definitions are used by way of explanation, however.

$$[\text{Number of connections in the pool}] = [\text{Number of connections that have not been used}] + [\text{Number of connections that are in use}]$$

$$[\text{Number of intended deletions}] = [\text{Change in pool size}] - [\text{Number of connections deleted in the processing of 1.-2.}]$$

$$[\text{Number of allowable deletions}] = [\text{Number of connections in the pool}] - [\text{Initial and Minimum pool size}]$$

1. Delete the connection for which the Idle Timeout occurred

Connections for which Idle Timeout occurred are detected from the connection time stamp and deleted from the pool.

2. Delete the connection for which verification failed

Connections for which verification failed are deleted from the pool. For details on connection verification, refer to "[6.11.2 Connection Verification](#)".

3. Delete only the maximum number of intended deletions

If the following conditions are satisfied, unused connections are searched for and [Number of intended deletions] used as the maximum for deletion from the pool. If these conditions are not satisfied, the conditions are not deleted.

$$0 < [\text{Number of intended deletions}] \leq [\text{Number of allowable deletions}]$$

4. Correct the pool size

If the following condition is satisfied for the processing result of 1.-3., connections are created until [Initial and Minimum pool size] is reached.

$$[\text{Number of connections in the pool}] < [\text{Initial and Minimum pool size}]$$

Scaleup of Pool Size for Connection Requests

When the connection request from the application is processed, but there is no unused connection in the pool that satisfies the following two conditions, scale up the size so that the pool resize quantity is not exceeded.

- Connection matching succeeds
- Connection verification succeeds

The behavior in the pool at the time of scaleup is shown below. The following two definitions are used in the explanation:

$$[\text{Number of connections in the pool}] = [\text{Number of connections that have not been used}] + [\text{Number of connections that are in use}]$$

$$[\text{Number of allowable generations}] = [\text{Maximum pool size}] - [\text{Number of connections in the pool}]$$

Conditions		Behavior in the pool
Less than [Initial and Minimum pool size] (*1)		Connections are generated until [Initial and Minimum pool size] is reached.
Equal to or greater than [Initial and Minimum pool size], and less than [Maximum pool size]	When only [Change in pool size] can be generated	Only [Change in pool size] connections are generated.
	If [Maximum pool size] is exceeded when [Change in pool size] is generated	Only [Number of allowable generations] connections are generated.
Match with [Maximum pool size]		A connection is not generated. (*2)

*1 This applies when the unused connections in the pool are all deleted following a connection verification failure.

*2 If there are unused connections for which connection matching fails, however, the number of connections that is rebuilt is equal to the maximum pool resize quantity.

Connection Matching

'Connection matching' is a function that verifies whether the authentication information for the connections in the pool matches the authentication information at the time of the connection request. For details on how to specify the authentication information, refer to "Authentication Information at the time of Resource Access" in the "Java EE Function Security" chapter.

6.11.2 Connection Verification

Before the pooled connection is returned to the application, the application server can verify whether connections are enabled. According to this verification, if EIS cannot be used because of network trouble or trouble in EIS itself, the connection is discarded from the pool, another connection obtained from the pool again, and the enabled connection returned. If there are no enabled connections in the pool, a new connection is obtained from EIS, therefore connection can be re-established.

The following can be set when connection verification is enabled:

- Verification method
- table name
- In all trouble

The tuning of these items can be configured using the Interstage Java EE Admin Console or the asadmin command.

- When the Interstage Java EE Admin Console is used

The settings can be configured in the following window:

- [Resources] > [JDBC] > [Connection Pools] > [General]

For details, refer to the Interstage Java EE Admin Console Help.

- When the asadmin command is used

When creating the JDBC Connection Pool, refer to "asadmin", "create-jdbc-connection-pool Subcommand" in the "Java EE Operation Commands" chapter.

When updating the JDBC Connection Pool item, refer to "asadmin", "Definition Items of the resources.jdbc-connection-pool" in the "Java EE Operation Commands" chapter.

Execution Timing for Connection Verification

When connection verification is enabled, the application server executes it during the following:

A) Connection verification for periodic pool monitoring

Executed periodically at idle timeout intervals.

B) Connection verification for connection requests from the application

Executed after the connection is generated, but before it is stored in the pool (B1), and after the connection is obtained from the pool, but before it is returned to the application (B2).

B1) Connection verification for when the connection is generated

Executed immediately after the connection to the DB is established, and before the connection is stored in the pool.

If the verification fails, then the generation of the connection is determined to have failed, and an exception is returned to the application.

B2) Connection verification for a connection obtained from the pool

Executed before the connection obtained from the pool is returned to the application.

Among the new connections created through pool size scaleup, verification is unnecessary for connections returned to the application, and therefore is skipped. Connections generated when the pool is initialized are also regarded as connections obtained from the pool, and therefore are not verified.

- When [For all trouble] is enabled:

To make up for the fact that there are temporarily '0' connections in the pool in [For all trouble] processing, a new connection is generated. If, at this point, connection re-establishment is complete and there are unused connections, they are replaced (destroyed) and the connection is returned to the requester.

- When [For all trouble] is disabled:

The connection for which verification failed is deleted, the next connection is taken out of the pool, and connection verification is re-executed. For details on the behavior when connection verification fails for all unused connections in the pool, refer to "[Scaleup of Pool Size for Connection Requests](#)".



When the pooling feature is disabled in Interstage, connection verification will only be executed before the connection that is generated is stored in the pool (B1).

Conditions for Which Connection Trouble is Considered to have Occurred

Conditions considered as connection trouble when [For all trouble] is enabled are as follows:

- An exception is returned from the JDBC driver when connection verification is executed



- An exception is returned when the database connection could not be re-established.
- Because of automatic reconnection, business can continue even if an error has occurred in the database, therefore it is recommended that connection verification be enabled. However, performance overheads will occur since verification will also be executed in the

application when the `getConnection` method is executed and the connection is obtained from the Connection Pool. If there is no need for connection verification and to improve processing performance, disable connection verification if necessary.

- If the connection verification has been set as disabled, the specified verification method and table name will also be disabled.
 - Connection verification that is executed when the connection is generated is not a monitoring and logging collection target. For this reason, "Number of physical connections for which verification failed" is not updated.
-

6.11.3 Transaction Management

The following can be set in JDBC connection pool transaction management. For details, refer to "Creating Applications that Connect to the Database" in the "Java EE Application Development" chapter.

- Non-transaction connection
- Only join connection after the transaction has started
- Transaction block
- Block level

The tuning of these items can be configured using the Interstage Java EE Admin Console or the `asadmin` command.

- When the Interstage Java EE Admin Console is used

The settings can be configured in the following window:

- [Resources] > [JDBC] > [Connection Pools] > [General]

For details, refer to the Interstage Java EE Admin Console Help.

- When the `asadmin` command is used

When creating the JDBC Connection Pool, refer to "`asadmin`", "`create-jdbc-connection-pool` Subcommand" in the "Java EE Operation Commands" chapter.

When updating the JDBC Connection Pool item, refer to "`asadmin`", "`Definition Items of the resources.jdbc-connection-pool`" in the "Java EE Operation Commands" chapter.

6.11.4 Detail Attributes

The following can be set to tune JDBC connection pools that have already been defined.

- Statement timeout
- Pooling
- Leak timeout
- Leak reclaim
- Creation retry count
- Retry interval
- Output of access information to the audit log

The tuning of these items can be configured using the Interstage Java EE Admin Console or the `asadmin` command.

- When the Interstage Java EE Admin Console is used

The settings can be configured in the following window:

- [Resources] > [JDBC] > [Connection Pools] > [Advanced]

For details, refer to the Interstage Java EE Admin Console Help.

- When the `asadmin` command is used

Refer to "`asadmin`", "`Definition Items of the resources.jdbc-connection-pool`" in the "Java EE Operation Commands" chapter.

For details on each definition item, refer to "JDBC Connection Pool Definition Items" in the "List of Definition Items" chapter.



Notes about statement timeouts

If a Symfoware database is used, the statement timeout cannot be used.

Notes about leak timeout and leak reclaim

If the "leak reclaim" setting is enabled and a connection leak is detected, that physical connection will be destroyed automatically. If the database is being accessed or a transaction is in progress at the time of the connection, the user application may fail when it is executed. To avoid this, set the value that was estimated for the SQL statement execution time or environment that will be issued by the application for "statement timeout" of the JDBC Connection Pool that will be used.

When the physical connection is destroyed automatically by "leak reclaim" as a result of the SQL statement execution time control, the possibility that the connection will access the database is reduced.

Note that, if a long enough time is set for "leak timeout", it is guaranteed that a leak will have occurred in the detected connection (in other words, the connection will not be used for database access). Additionally, when using the JDBC connection, close the connection immediately after use so that the same connection is not used for too long.

Notes on pooling

When the pooling feature is disabled in Interstage, tuning of the following is not possible:

- The initial and minimum pool sizes
 - Maximum pool size
 - Pool resize quantity
 - Idle timeout
 - Maximum wait time
 - For all trouble
-

6.12 Connector Tuning

The connection with the physical EIS is managed in a pool and shared in the application. If there is a connection request from the application, the application server obtains a connection from the connection pool and returns it to the application. Additionally, when the application releases the connection, the application server returns that connection to the pool. The following tuning is possible for this connector connection pool.

- [Number of Connections in the Pool](#)
- [Connection Verification](#)
- [Transaction Management](#)
- [Shutdown Timeout](#)

Tuning for each item can be set using [Connector] > [Connector connection pool] of the Interstage Java EE Admin Console and the `asadmin` command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- "Subcommands - Category: Referencing/Updating Definition Items" in the "Java EE Operation Commands" chapter
- "create-connector-connection-pool Subcommand" in the "Java EE Operation Commands" chapter
- "Definition Items of the resources.connector-connection-pool" in the "Java EE Operation Commands" chapter

6.12.1 Number of Connections in the Pool

The following can be set to tune the number of connections in the connector connection pool.

Pool size scaleup is executed where necessary when a connection request is received from the application. Pool size scaledown is executed periodically at fixed intervals. The pooled connection is deleted when the IJServer cluster or Interstage Java EE DAS service is stopped.

- Initial and Minimum pool size
- Maximum pool size
- Change in pool size
- Idle Timeout
- Maximum wait time

The pool size scaledown and scaleup behavior is explained below.

Regular Pool Monitoring (Pool Size Scaledown)

In the application server, the connection pool status is monitored regularly for the performance of pool resizing. Resizing for pool monitor is scheduled according to the following mechanisms, and the resize task executed according to the Idle Timeout interval.

- When the pool is initialized (*1)
- If connection trouble was detected when the "In all trouble" settings are enabled (*2)

*1 The pool is initialized when the IJServer cluster or Interstage Java EE DAS service receives the first connection request from the application.

*2 For details on conditions considered as connection trouble, refer to "6.12.2 Connection Verification".

In pool resize task, all illegal connections where Idle Timeout or Connection verification fails are removed from the pool, and an attempt is made to scale down the size to a range in which the Change in pool size is not exceeded. Depending on the number of illegal connections, only connections for which the Change in pool size is exceeded may be deleted. If the minimum value pool size in the deletion result is breached, the connection is complemented until the minimum value is reached.

Specifically, processing is executed according to the following procedure. The following definitions are used by way of explanation, however.

$$\begin{aligned} \text{[Number of connections in the pool]} &= \text{[Number of connections that have not been used]} + \text{[Number of connections that are in use]} \\ \text{[Number of intended deletions]} &= \text{[Change in pool size]} - \text{[Number of connections deleted in the processing of 1.-2.]} \\ \text{[Number of allowable deletions]} &= \text{[Number of connections in the pool]} - \text{[Initial and Minimum pool size]} \end{aligned}$$

1. Delete the connection for which the Idle Timeout occurred

Connections for which Idle Timeout occurred are detected from the connection time stamp and deleted from the pool.

2. Delete the connection for which verification failed

Connections for which verification failed are deleted from the pool. For details on connection verification, refer to "6.12.2 Connection Verification".

3. Delete only the maximum number of intended deletions

If the following conditions are satisfied, unused connections are searched for and [Number of intended deletions] used as the maximum for deletion from the pool. If these conditions are not satisfied, the conditions are not deleted.

$$0 < \text{[Number of intended deletions]} \leq \text{[Number of allowable deletions]}$$

4. Correct the pool size

If the following condition is satisfied for the processing result of 1.-3., connections are created until [Initial and Minimum pool size] is reached.

$$\text{[Number of connections in the pool]} < \text{[Initial and Minimum pool size]}$$

Scaleup of Pool Size for Connection Requests

When the connection request from the application is processed, but there is no unused connection in the pool that satisfies the following two conditions, scale up the size so that the pool resize quantity is not exceeded.

- Connection matching succeeds
- Connection verification succeeds

The behavior in the pool at the time of scaleup is shown below. The following two definitions are used in the explanation:

[Number of connections in the pool] = [Number of connections that have not been used] + [Number of connections that are in use]
[Number of allowable generations] = [Maximum pool size] - [Number of connections in the pool]

Conditions		Behavior in the pool
Less than [Initial and Minimum pool size] (*1)		Connections are generated until [Initial and Minimum pool size] is reached.
Equal to or greater than [Initial and Minimum pool size], and less than [Maximum pool size]	When only [Change in pool size] can be generated	Only [Change in pool size] connections are generated.
	If [Maximum pool size] is exceeded when [Change in pool size] is generated	Only [Number of allowable generations] connections are generated.
Match with [Maximum pool size]		A connection is not generated. (*2)

*1 This applies when the unused connections in the pool are all deleted following a connection verification failure.

*2 If there are unused connections for which connection matching fails, however, the number of connections that is rebuilt is equal to the maximum pool resize quantity.

Connection Matching

'Connection matching' is a function that verifies whether the authentication information for the connections in the pool matches the authentication information at the time of the connection request. This applies to "Connection Matching Contract" in the Java EE Connector Architecture terms. The conditions for which connection matching is considered to have succeeded and failed are shown below. For details on how to specify the authentication information, refer to "Authentication Information at the time of Resource Access" in the "Java EE Function Security" chapter.

- When matching fails:
 - null or ResourceException is returned for the javax.resource.spi.ManagedConnectionFactory interface matchManagedConnections() method.
- When matching succeeds:
 - The javax.resource.spi.ManagedConnectionFactory interface matchManagedConnections() method return value is the ManagedConnection object.

6.12.2 Connection Verification

Before the pooled connection is returned to the application, the application server can verify whether connections are enabled. According to this verification, if EIS cannot be used because of network trouble or trouble in EIS itself, the connection is discarded from the pool, another connection obtained from the pool again, and the enabled connection returned. If there are no enabled connections in the pool, a new connection is obtained from EIS, therefore connection can be re-established.

The following can be set for connection verification.

- Connection verification
- In all trouble

Success/failure of Connection Verification

When connection verification is enabled, it is determined according to the following processing.

- Verification succeeds:
 - When the `javax.resource.spi.ValidatingManagedConnectionFactory` interface is not implemented
 - When the return value for the `getInvalidConnections()` method of the `ValidatingManagedConnectionFactory` interface returns a null, size0 Set object, or `ResourceException`
- Verification fails:
 - When the return value for the `getInvalidConnections()` method of the `ValidatingManagedConnectionFactory` interface returns a Set object size that is greater than 0
 - When trouble has already been detected in the target connection before connection verification is executed

Connection Verification Execution Mechanism

A) Connection verification for periodic pool monitoring

Executed periodically at idle timeout intervals. For details on the behavior when connection verification fails, refer to "[Regular Pool Monitoring \(Pool Size Scaledown\)](#)".

B) Connection verification for connection requests from the application

Executed before the connection obtained from the pool is returned to the application.

Among the new connections created through pool size scaleup, verification is unnecessary for connections returned to the application, and therefore is skipped. Connections generated when the pool is initialized are also regarded as connections obtained from the pool, and therefore are not verified. If connection verification fails, the behavior will depend on whether "In all trouble" is enabled or not.

- When "In all trouble" is enabled:

A new connection is generated to compensate for when there are temporarily 0 connections in the pool at the time of "In all trouble" processing. If at this point re-establish processing is complete and there are unused connections, they are discarded and the connection returned to the request source.
- When "In all trouble" is disabled:

The connection for which verification failed is deleted, the next connection removed from the pool, and connection verification re-executed. For details on the behavior when verification fails for all unused connections in the pool, refer to "[Scaleup of Pool Size for Connection Requests](#)".

Conditions for which Connection Trouble is Considered to have Occurred

Conditions for which connection trouble is considered to have occurred when "In all trouble" is enabled are as follows:

- An exception is returned when the `javax.resource.spi.ManagedConnection` interface `cleanup()` method is executed.
- The `javax.resource.spi.ConnectionEventListener` interface `connectionErrorOccurred()` method is called from the resource adapter.

The `javax.resource.spi.ConnectionEventListener` implementation is passed when the `javax.resource.spi.ManagedConnection` `addConnectionEventListener()` method is called from the application server. To enable "In all trouble", implement notice processing for connection trouble with EIS.



Note

- An exception is returned when the connection could not be re-established.
- There are slight performance overheads for connection verification.

6.12.3 Transaction Management

The following can be set in connector connection pool transaction management. For details, refer to "Outbound/resource Adapter Transaction Control" in the "Functionality Provided in the Java EE Application" chapter.

- Transaction support

6.12.4 Shutdown Timeout

The following can be set using the connector service:

- Shutdown Timeout

When running an application that has implemented a resource adapter class, the application server only waits for the time specified for the completion of the `endpointDeactivation()` and `stop()` methods (resource adapter stop processing).

If stop processing does not complete within the specified time, then the application server continues passive processing for applications after that. This is effective for applications in which the return from the `endpointDeactivation()` and `stop()` methods may be delayed.

In resource adapter stop processing, threads used for the stop that are generated in resource adapter units are processed in parallel. The shutdown timeout can be set for Interstage Java EE DAS service and IJServer cluster units, and is applied for all resource adapters that were deployed to the target that was set.

Set the shutdown timeout using the following method:

1. In the tree view, select [Settings], and then click the settings name.
2. Select [Connector Service].
3. Enter the shutdown timeout (in seconds), and then click [Save].
4. Restart the IJServer cluster or Interstage Java EE DAS service.

The same operation can also be performed using the `asadmin` command `set` subcommand. For details, refer to "Shutdown timeout" (shutdown-timeout-in-seconds) in "Definition Items of the `configs.config.connector-service`" in the "Java EE Operation Commands" chapter.



Note

Resource adapter stop processing first executes the `endpointDeactivation()` method, then `stop()`. If the return from the `endpointDeactivation()` method does not complete within the time specified for the shutdown timeout, and endpoint collection processing is still incomplete before the `stop()` method is called, then the system calls again `endpointDeactivation()` and `stop()`.

6.13 Port Tuning

For ports used by Interstage Application Server, a different port number must be set for each service. If the same port number is set and the service is then run, the behavior will not be normal. For example, access from the client will not be possible.

Also, a port number used by Interstage Application Server must be different from other ports used by applications unrelated to Interstage Application Server.

If a port number shown below is already being used, then use a different port number.



Note

- **Ephemeral Ports**

The port that is used in Interstage Application Server may conflict with the ephemeral port.

An "ephemeral port" is a temporary port that is automatically assigned from a predefined range to enable IP communications. In the operating system default settings, a port number in the following ranges will be assigned:

	Windows32/64	Solaris32/64	Linux32/64
Ephemeral port range	Windows Server® 2003: 1024-5000 Windows Server® 2008: 49152-65535	32768-65535	32768-61000

If an Interstage Application Server port number has been set in the ephemeral port range, take one of the following actions:

- Change the ephemeral port range to one that is outside the range for the port numbers that are used in Interstage Application Server. To change the ephemeral port range, follow the method used to change the operating system ephemeral ports.
- Set the port numbers that are used in Interstage Application Server to a range that is outside the ephemeral port range.

- Well-known Ports (between 0 and 1023)

When setting the port numbers, make sure that they do not conflict with the well-known ports (0 to 1023).

Solaris32/64 Linux32/64

If a user other than the system administrator (root) is set as the "service operator" user in Java EE, the well-known port (0 to 1023) cannot be set for the port number that is used in the IJServer cluster, Interstage Java EE 6 DAS service and/or Interstage Java EE Node Agent service.

If it is set, the port cannot be used and the Interstage Java EE 6 DAS service and/or Interstage Java EE Node Agent service will not behave normally.

- Port numbers that are bound to IPv6 addresses

For details on using port numbers that are bound to IPv6 addresses, refer to "Operating in an IPv6 Environment" in the "Tuning Interstage" chapter of the Tuning Guide.

Port Numbers

The port numbers that are used in Interstage Application Server are shown below.

Service name	Usage	Port number/protocol	Location in the manuals
IJServer cluster	HTTP listener port number	28090/tcp (*1) (Can be changed to any number)	"Properties Used when Creating and Updating Definitions"
	IIOp listener port number	23700/tcp (*1) (Can be changed to any number)	
	IIOp listener port number for SSL communication	23820/tcp (*1) (Can be changed to any number)	
	IIOp listener port number for SSL communication client authentication	23920/tcp (*1) (Can be changed to any number)	
	RMI registry connection port number used by the JMX connector	28686/tcp (*1) (Can be changed to any number)	
Interstage Java EE DAS service	HTTP listener port number for operation management	12001/tcp (*2) (Can be changed to any number)	"HTTP Service Definition Items"
	HTTP listener port number	28080/tcp (*2) (Can be changed to any number)	
	IIOp listener port number	23600/tcp (*2) (Can be changed to any number)	"IIOp Service Definition Items"
	IIOp listener port number for SSL communication	23601/tcp (*2) (Can be changed to any number)	
	IIOp listener port number for SSL communication client authentication	23602/tcp (*2) (Can be changed to any number)	

Service name	Usage	Port number/protocol	Location in the manuals
	RMI registry connection port number used by the JMX connector	8686/tcp (*2) (Can be changed to any number)	"Managed Service Definition Items"
Interstage Java EE Node Agent service	RMI registry connection port number used by the JMX connector	29696/tcp (*3) (Can be changed to any number)	"Interstage Java EE Node Agent Service Definition Items"
Message broker	Message broker port number	7676/tcp (Can be changed to any number)	"imqbrokerd"
	admin connection service port number	None (*4) (Can be changed to any number)	"Port Mapper"
	jms connection service port number	None (*4) (Can be changed to any number)	

*1 The value for this item is defined as a system property, and is used when the IJServer cluster is created or when the server instance is added. For details on system properties, refer to "Properties Used when Creating and Updating Definitions" in the "List of Definition Items" chapter.

*2 This item describes the default value. This item value can also be specified at the time of the installation.

*3 This item describes the default value.

*4 When the port number is not set, the ephemeral port will be assigned when the message broker starts up.

6.14 Transaction Service Tuning

This section explains how tune transaction service.

For details on each definition item, refer to "Definition Items of the configs.config.transaction-service" in the "Java EE Operation Commands" chapter.

Transaction Service Time Monitoring Function Settings

The transaction service time monitoring function types are as follows:

Function name	Explanation
Transaction timeout	Monitors the time until the transaction is complete.
Retry timeout	This can be used when global transactions are used. Set the reconnection retry time for servers in which the transaction information query fails when the transaction is passed to multiple servers.
Transaction timeout set for XAResource	This can be used when global transactions are used. Use the setTransactionTimeout method for the XAResource that is used in the global transaction to set the timeout value.

If the above monitoring functions are used together, then set the times so that they conform to the formula below:

$$T(x) > T(t) > T(r)$$

where:

- T(x): Transaction timeout set for XAResource
- T(t): Transaction timeout
- T(r): Retry timeout

Keypoint Processing

'Keypoint processing' is when the transaction log file is compressed. The transaction number interval used to execute keypoint processing can be specified in the transaction service definition.

Any change in the frequency with which keypoint processing is executed will have an impact on the transaction log file size and performance, as shown below. The extent of the impact will depend on the transaction processing content.

- Increase
 - Log file size: Increases
 - Performance: Improves
- Decrease
 - Log file size: Decreases
 - Performance: Deteriorates

The log file size can be estimated using the following formula:

$$\text{Keypoint interval} \times 0.0005\text{MB} + 0.15\text{MB}$$

6.15 ORB Tuning

This section explains Object Request Broker (ORB) tuning.

6.15.1 ORB

IIOP communication through ORB is available in Java EE when requesting objects on a physically different machine or when requesting objects in another process on the same machine.

The ORB settings are explained below.

When the IJServer cluster is used, the ORB settings shown below can be changed.

ORB setting	Default value	Meaning	Effect
Total number of connections	1024	Specify the maximum number of simultaneous connections for IIOP communication. (*1) (*2) If the total number of connections is exceeded, simultaneous connections are not possible. (*3)	By specifying the maximum number of simultaneous connections, memory and resources used in the connection are controlled.
Maximum message fragment size (Unit: bytes)	1024	Set the maximum IIOP message fragment size. (*4)(*5) (*6) (*7)	IIOP message encoding processing is performed using the maximum fragment size. Compared to encoding all the data as a whole, the Java heap arena that will be used can be compressed.

When the application client container or stand-alone client is used, the ORB settings shown below can be changed.

ORB setting	Default value	Meaning	Effect
Maximum message fragment size (Unit: bytes)	4096	Set the maximum IIOP message fragment size. (*4) (*5) (*6) (*7)	IIOP message encoding processing is performed using the maximum fragment size. Compared to encoding all the data as a whole, the Java heap arena that will be used can be compressed.

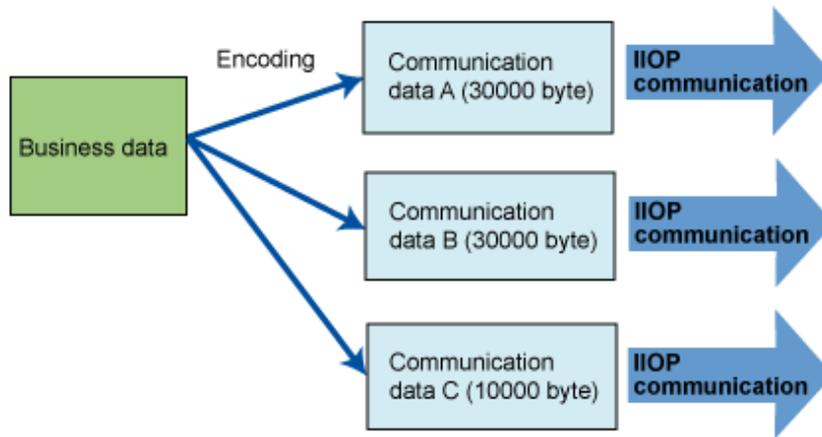
*1 Even when a value less than 100 is set, connection recovery will not be performed if the number of connections does not reach or exceed 100.

*2 If a connection has been established, the communication will use that connection. For example, if a process has called a request using a multithread, only one connection will be used if the call destination is a single process.

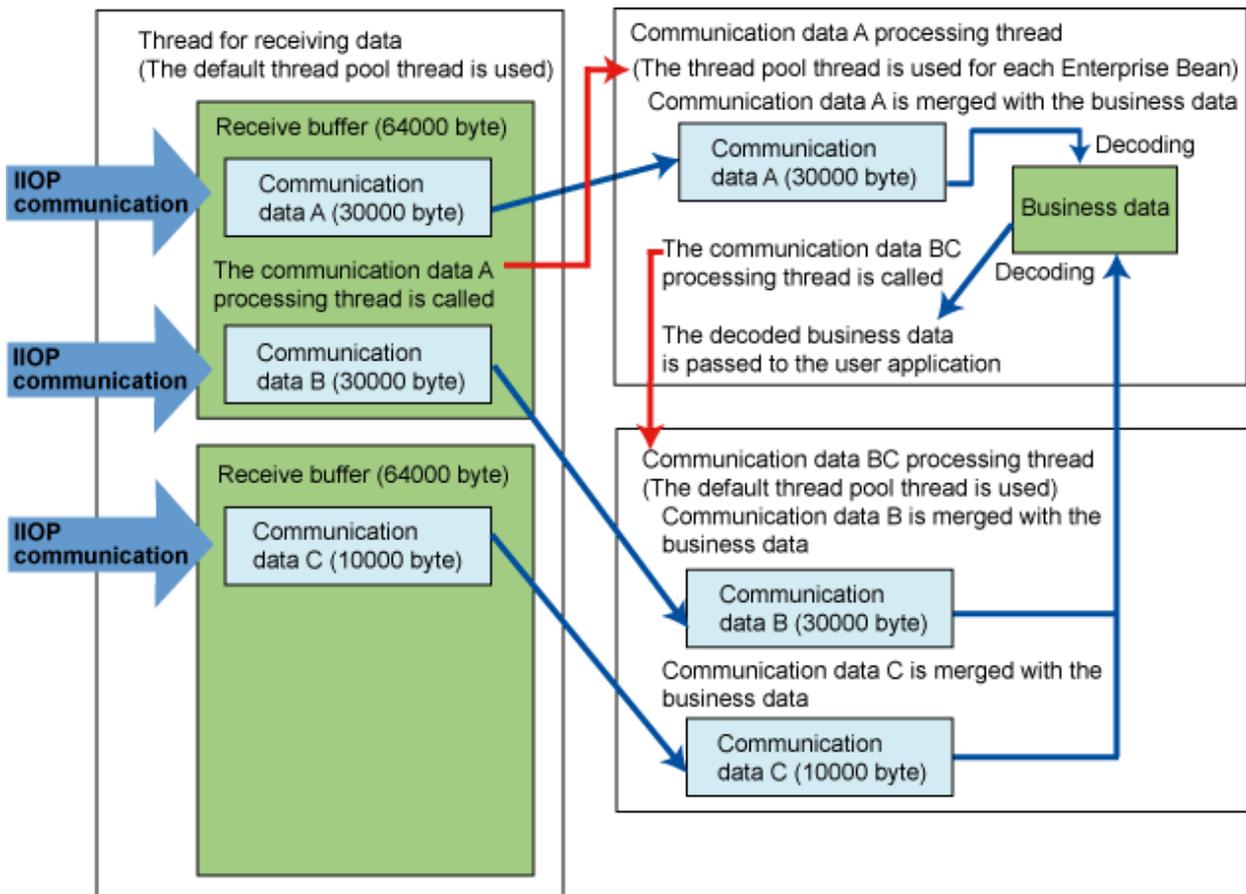
*3 If the number of connections exceeds this value, idle state connection recovery (where the connection is broken) is performed. If the number of connections that are being used reaches the total number of connections and an attempt is made to launch a new connection, the new connection itself will be recovered.

*4 The maximum message fragment size is a setting for when the data is sent. This feature is enabled when the request from the client is sent and the reply from the server is sent.

For example, when the encoded communication data is 70000 bytes and the maximum message fragment size is 30000 bytes, the data is split as shown in the graphic below before IIOP communication starts.



After the sent communication data is stored as the receive buffer of the receiver, it is decoded as business data, starting with the leading data, and then passed to the user application.



*5 Do not set a value that is less than 1024 bytes. If the maximum message fragment size is less than 1024 bytes, a thread of twice the assumed maximum client concurrency level will be required. For this reason, the number of threads that will be required in the server may exceed the estimated number.

*6 If a value of 256000 or greater is set, a value greater than this setting must be set for the connection destination maximum receive buffer size. For details on the maximum receive buffer size, refer to "6.15.2 Notes on Communication Data Size".

*7 The value that was set will affect heap usage on the Java VM.

The buffer area size that is obtained at the time of IIOP communication will fluctuate depending on the maximum message fragment size. For this reason, when changing the maximum message fragment size, in addition to the business data that will actually be sent/received, also consider the heap usage that will depend on the maximum message fragment size setting before estimating the Java VM heap arena size.

In the formulae shown below, the larger results indicate the heap usage that will be required.

- Heap usage that will be required when the IJServer cluster starts up

In IIOP communication to start the IJServer cluster, the following heap usage will be required:

Heap usage that will be required when the IJServer cluster starts up = Maximum message fragment size x 3

- Heap usage that will be required when the application is executed

In IIOP communication to execute the application, the following heap usage will be required:

Required heap usage in the client = (Maximum message fragment size + Maximum receive buffer size) x Maximum number of requests that are sent at the same time

Required heap usage in the server = (Maximum message fragment size + Maximum receive buffer size) x Assumed maximum number of clients that will be connected simultaneously

Maximum number of requests that are sent at the same time: This corresponds to the number of client process threads that are executed at the same time.

Assumed maximum number of clients that will be connected simultaneously: This corresponds to the maximum pool size of the default thread pool.

The ORB settings are configured using the methods shown below.

Total number of connections

This can be changed/referenced using the Interstage Java EE Admin Console and the `asadmin` command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- The "Maximum connections" item in "Definition Items of the `configs.config.iiop-service`" in the "Java EE Operation Commands" chapter

When this setting is changed, the IJServer cluster must be restarted.

Maximum message fragment size

- When the IJServer cluster is used

This can be changed/referenced using the Interstage Java EE Admin Console and the `asadmin` command. For details, refer to the following:

- Interstage Java EE Admin Console Help
- The "Maximum message fragment size" item in "Definition Items of the `configs.config.iiop-service`" in the "Java EE Operation Commands" chapter

When this setting is changed, the IJServer cluster must be restarted.

- Configuring the settings in the application client container

Configure the following value in the `VMARGS` environment variable:

```
-Dcom.sun.corba.ee.giop.ORBFragmentSize=Value
```

For details, refer to the following:

- "Setting the Java EE Application Client Environment" in the "Java EE Application Operation" chapter

- When a stand-alone client is used

Set the following value in the Java VM option:

```
-Dcom.sun.corba.ee.giop.ORBFragmentSize=Value
```

6.15.2 Notes on Communication Data Size

Increasing the maximum receive buffer size

When extending the maximum message fragment size or using non-fragment mode, check whether the connection destination send data size will exceed 256000 bytes.

If the connection destination send data size exceeds 256000 bytes, it will be necessary to increase the maximum receive buffer size.

Specify the maximum receive buffer size setting in the Java VM option.

The maximum receive buffer size is a setting for when the data is received. This feature is enabled when the request from the client is received and the reply from the server is received.

Property Name

`com.sun.corba.ee.transport.ORBMaximumReadByteBufferSize`

Value that is Set

byte

Value Range

256000-2147483647

Default Value

256000

Setting Method

- When a stand-alone client is used

Specify the setting in the Java VM option.

```
-Dcom.sun.corba.ee.transport.ORBMaximumReadByteBufferSize=Value
```

- Configuring the settings in the application client container

Configure the settings in the VMARGS environment variable.

For details, refer to the following:

- "Setting the Java EE Application Client Environment" in the "Java EE Application Operation" chapter

- When the settings are configured in the IJServer cluster

Using the Interstage Java EE Admin Console or the asadmin command, configure the setting in the Java VM option.

```
-Dcom.sun.corba.ee.transport.ORBMaximumReadByteBufferSize=Value
```

For details, refer to the following:

- Interstage Java EE Admin Console Help
- The "JVM option" (java-config.jvmoptions) item in "Definition Items of the configs.config.java-config" in the "Java EE Operation Commands" chapter

When this setting is changed, the IJServer cluster must be restarted.

The data that was received from the connection destination is stored in the receive buffer. The receive buffer size will be doubled twice by the received data size, from an initial value of 64000 bytes to the value that is set for the maximum receive buffer size (64000 > 128000 > 256000).

If the received data size exceeds the maximum receive buffer size, the processing to receive the data will fail and the following warning message will be notified:

- IOP00410233

If this warning message was notified, tune so that the connection destination send data size is less than the maximum receive buffer size.

Processing delays in Windows Server(R) 2008/Windows Server(R) 2008 R2

Because of the operating system specification (KB2020447), a processing delay of 5 seconds may occur during data send/receive processing in the following cases:

- When the Java EE client and server are run on the same machine.
- Communication data sent/received in a single transmission is between 65536 and 1048576 bytes

To avoid this problem, take one of the following actions:

- Set a maximum message fragment size of less than 65536 bytes.
- In the user application, make sure that the size of the communication data that can be sent/received in a single transmission is in the following range:
 - Less than 65536 bytes
 - 1048577 bytes or more

6.16 Alert Monitoring Function Tuning Solaris64

The alert monitoring function warning messages are output to the following:

- Server log
- Event log/system log (by default, these are disabled)

To detect IJServer cluster alert monitoring warning messages that monitor the event log/system log, use the create-system-properties subcommand to define the following system property:

- com.fujitsu.interstage.javaee.ijserver.alert-monitoring.syslog=true



Example

When the IJServer cluster name is "cluster01"

```
> asadmin create-system-properties --target cluster01 com.fujitsu.interstage.javaee.ijserver.alert-monitoring.syslog=true
```

6.17 Action when a Warning is Generated by the Alert Monitoring Function

There are two types of warning messages that are generated by the alert monitoring function (ISJEE_OM3204). These warning messages are shown below. Detailed warning messages provide relevant information for the event types.

- [Alert Monitoring Warning Messages \(Java Heap\)](#)

The Java VM memory allocation pool (*1) and Permanent generation space are monitored, and a warning message is generated when the danger of insufficient Java Heap is identified.

- [Alert Monitoring Warning Messages \(Garbage Collection\)](#)

A warning message is generated when a possible deterioration in service response is detected as a result of the Java VM Garbage Collection processing.

*1 The Java Heap is broadly divided into memory allocation pool (New generation area and Old generation area) and Perm generation area. In this explanation, the phrase "Java Heap" is used to refer to the memory allocation pool. For details on the Java Heap structure, refer to "Basic Knowledge" in the "JDK/JRE Tuning" chapter of the Tuning Guide.

When the a warning message is generated, the same warning message is prevented from being output for a further 10 minutes, even when the same problem was detected on the same Java VM process. This is to prevent the output of excessive messages with the same cause.

Additionally, if the Java application runtime environment has changed for some reason, even if the Java application that is executed has not itself changed, the way in which objects are used when the Java application is executed (such as generation of objects and unnecessary timing) may change, and the Garbage Collection processing occurrence status may change.

As a result, this message, which was not output in the environment previously, may now be output in the runtime environment after the change.

As a result, even if the Java application is not changed but the Java application runtime environment is changed for one of the reasons shown below, the value specified for the Java heap may need to be retuned.



Example

- The Application Server version was changed
- The JDK/JRE version was changed
- The execution mode was changed from a 32-bit mode to a 64-bit mode environment
- The hardware was changed

- The OS was changed

6.17.1 Alert Monitoring Warning Messages (Java Heap)

The Java VM memory allocation pool and Permanent generation space are monitored, and the danger of insufficient Java Heap is notified in a warning message (ISJEE_OM3204).

Three types of warning messages can be generated when Java Heap and Permanent generation space problems occur. For details on other warning messages, refer to "6.17.2 Alert Monitoring Warning Messages (Garbage Collection)".

The warning message is generated according to the following conditions.

The format of the timestamp contained in the detail message is "year/month/day hours:minutes:seconds.milliseconds".

Message text/details	Meaning of the warning	Conditions of occurrence
<p>There are possibilities of OutOfMemoryError because of the lack of the memory:</p> <p>TIME={0} SIZE={1}</p> <p>TIME: Time of occurrence</p> <p>SIZE: Estimated volume to be added to the Java heap arena (in bytes) (*1)</p>	<p>The Java Heap is insufficient, therefore there is a danger that OutOfMemoryError will occur.</p>	<p>When the Java Heap usage rate immediately after Full GC is greater than 95%.</p> <p>Alternatively, when the Java Heap usage rate immediately after Full GC is greater than 90%, AND the Java Heap size used since the occurrence of the previous Full GC has increased continuously for at least 3 times.</p>
<p>There are possibilities of OutOfMemoryError because of the lack of the Perm region:</p> <p>TIME={0} SIZE={1}</p> <p>TIME: Time of occurrence</p> <p>SIZE: Estimated volume to be added to the Permanent generation space (in bytes) (*1)</p>	<p>The Permanent generation space is insufficient, therefore there is a danger that OutOfMemoryError will occur.</p>	<p>When the Permanent generation space usage amount is greater than 90%.</p>
<p>OutOfMemoryError warning is occurred because the Perm region is exhausted:</p> <p>TIME={0} SIZE={1}</p> <p>TIME: Time of occurrence</p> <p>SIZE: Volume increase in the Permanent generation space (in bytes)</p>	<p>The Permanent generation space usage amount is exhausted, therefore there is a danger that OutOfMemoryError will occur.</p>	<p>When the increase in the Permanent generation space usage amount since the previous measurement is greater than 10 per cent of the overall Permanent generation space, AND the Permanent generation space usage rate that is assumed for the next increase of the same percentage is greater than 90%. Note that the "SIZE" value shown is the size (volume increase) assumed for increases of the same rate.</p>

*1 To avoid this warning, increase the size of the Java heap arena or Permanent generation space for which the warning occurred.

The "SIZE" value shown is a rough estimate of the volume increase. It may differ from the actual required volume increase, therefore tune accurately according to the insufficient resources information.

Assumed cause of the alert monitoring warning messages (insufficient Java Heap), and action to be taken

Warning messages generated because of insufficient Java Heap result from the Java Heap or Permanent generation space reserved by the Java VM being insufficient. It is possible that the Java Heap size or Permanent generation space size that was reserved is inappropriate (too large or small), or that the Java application caused a memory leak.

If a warning message is generated, problems such as insufficient memory and response deterioration may occur if the service continues. To resolve these problems, perform tuning using the insufficient resource information or monitoring and logging function that is described in the warning message.

As shown below, increasing the Java Heap or Permanent generation space is one method of avoiding a warning message:

1. Increase the current insufficient resource upper limit value by 20%, and then restart the operation.
2. If a warning continues to be generated, increase the upper limit value by a further 20%, and perform tuning until the warning is no longer generated.

By repeating tuning so that a warning message is not generated, it is possible to build a stable operation system. If the warning message cannot be avoided even when the upper limit of the Java Heap size and Permanent generation space size is reached, perform an adjustment so that the Java application does not use up large amounts of memory, or so that memory leaks do not occur.

To tune the Java VM Heap area and Perm area, adjust the option that sets the upper limit value of the Heap area and Perm area in the IJServer cluster JavaVM option. For details, refer to "6.3.2 Java VM Heap and Permanent Area Size".

Perform tuning and resolve any problems in the development phase (system testing).

In addition to the method mentioned above (increasing the Heap area or Perm area), there is also the method of adding IJServer cluster server instances.

6.17.2 Alert Monitoring Warning Messages (Garbage Collection)

When the possibility of a degradation in service response is detected as a result of Java VM Garbage Collection processing, a warning message will be generated (ISJEE_OM3204).

There are five types of warning messages that are generated to warn of the impact of Java VM Garbage Collection. For details on other detail messages, refer to "6.17.1 Alert Monitoring Warning Messages (Java Heap)".

- [Garbage Collection Processing Time Warning Messages](#) (One type)
- [Garbage Collection Interval Warning Messages](#) (Four types)

The message warns of the danger of deterioration in the service response as a result of Garbage Collection processing, therefore it does not indicate operation abnormalities in the Java VM. Additionally, if a service is continued while the warning is output, it cannot be said categorically that execution of the Java application will be affected. If no warning message is output, it is possible to build a stable operation system.

Garbage Collection Processing Time Warning Messages

The warning message is generated according to the following conditions.

The format of the time information contained in the message is "year/month/day hours:minutes:seconds.milliseconds".

Message text/details	Meaning of the warning	Conditions of occurrence
It takes long time to do the garbage collections many times: TIME={0} AVERAGE={1} TIME: Time of occurrence AVERAGE: Average time for Full GC for the previous three times (in milliseconds)	Full GC continuously takes a long time.	When the average value for Full GC time for the previous three times is longer than 5 seconds.

During Garbage Collection processing, the application may stop for the Full GC average time specified in the message. If this message was output, a problem such as response deterioration may have occurred.

Cause of the alert monitoring warning messages (Garbage Collection processing time), and action to be taken

Possible causes of the Garbage Collection processing time warning message are as follows:

- There are insufficient system resources, for example physical memory is depleted

- Execution of the Java process that the message corresponds to has been inhibited, for example when another application with high CPU usage is running
- The Java Heap size that was specified is too large, so excessive time is requested for Garbage Collection processing

If there is a problem with the application response, check these factors.

Tuning to reduce the Java Heap size that was specified must be verified adequately. For programs in which the Java application uses up a lot of Java Heap, OutOfMemoryError may occur if the Java Heap size that was specified is reduced.

Garbage Collection Interval Warning Messages

These warning messages are generated when any of the following conditions occur, particularly when Garbage Collection is executed repeatedly at short intervals. Frequent execution of Garbage Collection processing may cause problems such as application response deterioration.

The format of the time information contained in the warning message is "year/month/day hours:minutes:seconds.milliseconds".

Message text/details	Meaning of the warning	Conditions of occurrence (*1)
Inefficient garbage collections are run with the short intervals: TIME={0} WEIGHT={1} TIME: Time of occurrence WEIGHT: Usage rate of the old generation immediately before Full GC (in %)	Inefficient Full GC occurs in short intervals.	When the Full GC interval time for the previous three times is shorter than 20 seconds, AND the usage rate of the Old generation area immediately before Full GC is less than 65%.
The garbage collections are run with the short intervals because of the lack of the memory: TIME={0} SIZE={1} TIME: Time of occurrence SIZE: Estimated volume to be added to the Java heap arena (in bytes) (*2)	The Java Heap is insufficient, therefore Full GC occurs in short intervals.	When the Full GC interval time for the previous three times is shorter than 20 seconds, AND the Java Heap usage rate immediately after Full GC is greater than 65%.
System.gc() are run with the short intervals: TIME={0} INTERVAL={1} TIME: Time of occurrence INTERVAL: Interval time for the java.lang.System.gc() method and the java.lang.Runtime.gc() method (in milliseconds)	The java.lang.System.gc() method and the java.lang.Runtime.gc() method occur in short intervals.	When the Full GC interval time for the previous three times is shorter than 20 seconds, AND the frequency of Full GC that occurs because of the java.lang.System.gc() method and the java.lang.Runtime.gc() method is high.
The garbage collections are run with the short intervals: TIME={0} INTERVAL={1} TIME: Time of occurrence INTERVAL: Full GC interval time (in milliseconds)	Full GC occurs in short intervals.	When the Full GC interval time for the previous three times is shorter than 20 seconds.

*1 Even when the conditions of occurrence are satisfied, the message may not be output if the Garbage Collection processing time is short.

*2 To avoid this warning, it will be necessary to increase the size of the Java heap arena for which the warning occurred.

The "SIZE" value shown is a rough estimate of the volume increase. It may differ from the actual required volume increase, therefore tune accurately according to the insufficient resources information.

Cause of the alert monitoring warning message (Garbage Collection interval), and action to be taken

When the "Inefficient garbage collections are run with the short intervals" warning message is generated:

Garbage Collection processing may have occurred regardless of available Java Heap. Possible causes are as follows:

- The initial Java Heap size (-Xms) is small, and Java Heap extension is repeated.
- The percentage for New generation area of the Java Heap that was specified is high (for details on New generation area, refer to "Basic Knowledge" in the "JDK/JRE Tuning" chapter of the Tuning Guide.

If application response problems are encountered, check whether there is a problem with the tuning options for the Java Heap.

When "The garbage collections are run with the short intervals because of the lack of the memory" warning message is generated:

There may be insufficient Java Heap. Refer to "[Assumed cause of the alert monitoring warning messages \(insufficient Java Heap\), and action to be taken](#)" and take action. If the warning is output even when the upper limit value of the Java Heap size is increased, large amounts of memory may have been used up by the Java application in a short time.

When the "System.gc() are run with the short intervals" warning message is generated:

The application calls the java.lang.System.gc() method and java.lang.Runtime.gc() method at short intervals. If frequent execution of Garbage Collection processing has an impact on the application response, adjust the application if these methods are not required.

If the stack trace output function is used when the FJVM java.lang.System.gc() is executed, then you will be able to identify the parts where the java.lang.System.gc() and java.lang.Runtime.gc() methods are executed. For details, refer to "Stack Trace Output Function that runs when java.lang.System.gc() is Executed" in the "JDK/JRE Tuning" chapter of the Tuning Guide.

This message might be output if the interval for automatic Garbage Collection using the Java RMI function is extremely short. If the java.lang.System.gc() and java.lang.Runtime.gc() methods have not been executed frequently in the application, check the interval for automatic garbage collection using the Java RMI function. For details, refer to "[6.3.3 Number of Garbage Collections](#)".

When Garbage Collection processing is performed at short intervals, and the conditions of occurrence shown in the above three messages do not occur:

"The garbage collections are run with the short intervals" is output.

6.18 Interstage Java EE DAS Service Heap Size and Address Space

Heap size

If a large number of IJServer clusters and server instances were created, or a large number of applications were deployed, then the Interstage Java EE DAS service might fail to start, or a process might crash, due to insufficient memory.

If there is not enough memory, then increase the Interstage Java EE DAS service Heap size from the default value of 512MB. Specify 'server' for the --target option.

Example:

Windows32/64

```
asadmin delete-jvm-options --target server \-Xmx512m
asadmin create-jvm-options --target server \-Xmx1024m
```

Solaris32 Linux32/64

```
asadmin delete-jvm-options --target server \-\-Xmx512m
asadmin create-jvm-options --target server \-\-Xmx1024m
```

Solaris64

```
asadmin delete-jvm-options --target server \-\-Xmx768m
asadmin create-jvm-options --target server \-\-Xmx1024m
```

In the above setting, Interstage Java EE DAS service must be running. If Interstage Java EE DAS service cannot start, refer to "[Action when Interstage Java EE DAS Service does not Start Up](#)".

Address Space

If the startup fails even after increasing the Heap size, then Interstage Java EE DAS service may have exceeded the process address space upper limit.

Calculate the process address space used by Interstage Java EE DAS service using the estimate formula below.

Make sure that the value calculated based on the number of IJServer clusters and server instances is below the upper limit for the process address space. If it is not, then consider reducing the number of IJServer clusters and server instances until the upper limit is not exceeded.

If the upper limit is exceeded and Interstage Java EE DAS service cannot start, delete the IJServer cluster. For details on how to do that, refer to "[How to Delete the IJServer Cluster](#)".

```
[max heap size] + [max perm size] + [num 1] +
( [IJServer clusters] x 22 + [server instances] x 10 + 82 ) x [num 2]
```

[num 1] and [num 2]

These values differ, depending on the platform used, as listed below:

Platform	[num 1]	[num 2]
Windows(R)	300 MB	0.25 MB
Solaris	500 MB	1.0 MB
Linux	500 MB	0.5 MB

[max heap size] and [max perm size]

Check the Interstage Java EE DAS service maximum Heap size and maximum Perm size issuing the command below:

```
asadmin get server.java-config.jvm-options
```

Maximum Heap size: The -Xmx default value is as follows:

Windows32/64 **Solaris32** **Linux32/64**

512 MB

Solaris64

768 MB

Maximum Perm size: -XX:MaxPermSize (the default is 192 MB)

Action when Interstage Java EE DAS Service does not Start Up

If the Interstage Java EE DAS service does not start up because the number of IJServer clusters is large, edit domain.xml.

Windows32/64

[Java EE common directory]\domains\interstage\config\domain.xml

Solaris32/64 **Linux32/64**

[Java EE common directory]/domains/interstage/config/domain.xml

Procedure for the Edit

1. Stop the Interstage Java EE Node Agent service.
2. Stop Interstage Java EE DAS service.

If normal stop cannot be performed, then restart the system after this step.

3. Increase the Heap size in domain.xml.

Using a text editor, open domain.xml, and change <jvm-options> from -Xmx***m (**m is the heap size) to -Xmx1024m:

```
<domain>
  <configs>
    <config dynamic-reconfiguration-enabled="true" name="server-config">
      <java-config>
        <jvm-options>-Xmx***m</jvm-options>
```

- Restart Interstage Java EE DAS service.

If a failure occurred when normal stop was performed, then restart the system.

- Restart the Interstage Java EE Node Agent service.

How to Delete the IJServer Cluster

Use the estimate formula above to calculate the number of IJServer clusters that must be deleted, and then delete them according to the procedure below. Before performing this task, it is recommended that you back up the IJServer cluster deployment resources and domain.xml/workers2.properties. For details on how to back up resources, refer to "Backing up and Restoring Resources" in the "Maintenance (Resource Backup/migration of Resources to Another Server)" chapter.

Windows32/64

```
[Java EE common directory]\domains\interstage\config\domain.xml
C:\Interstage\F3FMjs5\conf\jk2\[Web server name]\workers2.properties
```

Solaris32/64 **Linux32/64**

```
[Java EE common directory]/domains/interstage/config/domain.xml
/opt/FJSVjs5/conf/jk2/[Web server name]/workers2.properties
```

Procedure for Deleting the IJServer Cluster

- Stop the Interstage Java EE Node Agent service.

If normal stop cannot be performed, then stop the process by force.

- Stop Interstage Java EE DAS service.

If normal stop cannot be performed, then stop the process by force.

- Stop the web server. (*1)
- Stop the Interstage Management Console. (*2)
- Delete the <config>, <cluster> and <server> tags for the deletion target IJServer cluster in domain.xml.

<config>:

```
<config dynamic-reconfiguration-enabled="true" name="{IJServer cluster name}-config">
~
</config>
```

<cluster>:

```
<cluster config-ref="{IJServer cluster name}-config"
  heartbeat-address="{heartbeat address}"
  heartbeat-enabled="{heartbeat}"
  heartbeat-port="{heartbeat port}" name="{IJServer cluster name}">
~
</cluster>
```

<server> (for IJServer clusters of 2 or more server instances, multiple <server> tags must be deleted):

```
<server config-ref="{IJServer cluster name}-config" lb-weight="100"
  name="{IJServer cluster name}-{sequence number}" node-agent-ref="ijna"
  start-instance-in-startup="true">
~
</server>
```

- Delete (if present) the [channel.socket], [http], [lb] and [uri] sections for the deletion target IJServer cluster in workers2.properties (web server connector configuration file).

If there are multiple web servers, then you must edit workers2.properties on each one.

[channel.socket]:

```
[channel.socket:${IJSERVER cluster IP address}_${server instance port number}]
~
disabled=0
```

[http]:

```
[http :${IJSERVER cluster IP address}_${server instance port number}]
~
debug=0
```

[lb]:

```
[lb: ${IJSERVER cluster name}]
~
worker=http:${IJSERVER cluster IP address}_${server instance port number}
~
createdby=javaee
```

[uri] (delete all uri sections in which the deletion target IJSERVER cluster name was set for the 'group' property):

```
[uri:/${context root}/*]
group=${IJSERVER cluster name}
```

7. Restart the web server.
8. Restart the Interstage Management Console. (*1)
9. Restart Interstage Java EE DAS service.
10. Restart the Interstage Java EE Node Agent service.

When the service starts up, the resources for the IJSERVER cluster configuration file that were deleted in step 5 are automatically deleted.

*1 For details, refer to the Interstage Application Server Operator's Guide.

6.19 Correlative Time Monitoring Function Relationships

In the network communication that occurs in the functions shown below when there is a request from the application, there are several time-monitoring functions. This section describes the relationship between the functions below and each time-monitoring function that has an impact on the response time. For details on the functions that monitor non-communication time when objects that remain illegally are released (such as the connection pooling function), refer to each function explanation.

- [HTTP Communication](#)
- [IIOP Communication](#)
- [Transactions and Database Access](#)

The time until an abnormality is detected using the time monitoring function is called the 'timeout period'. The detection of an abnormality because the timeout period was exceeded is called a 'timeout'.

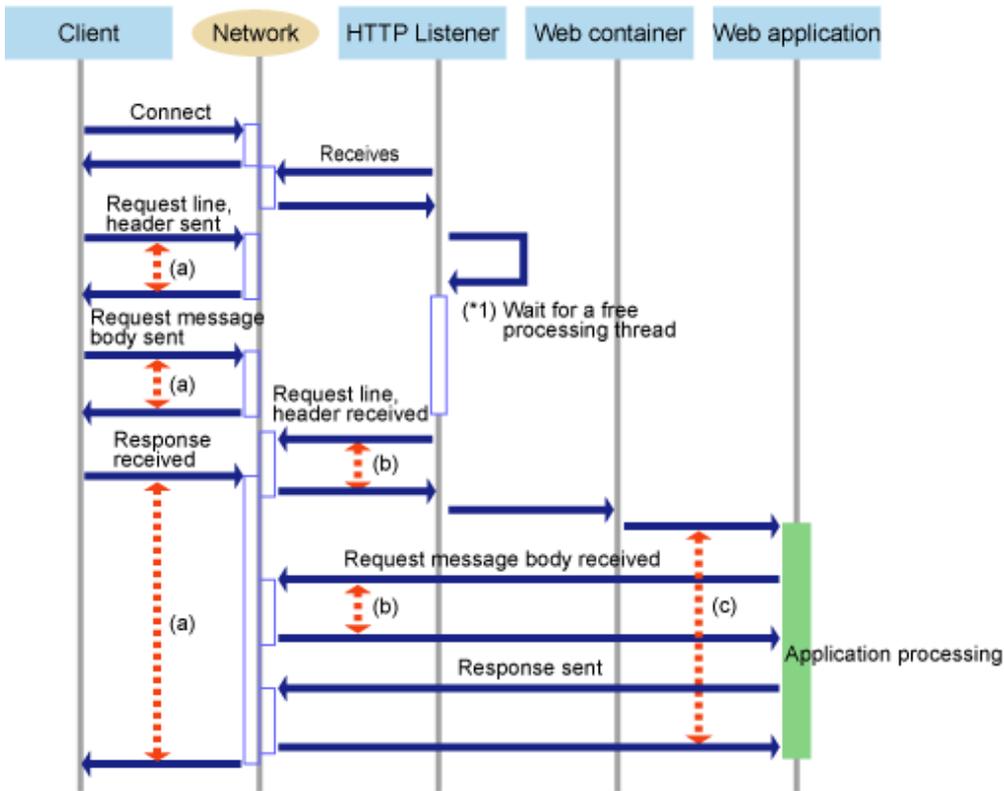
When the problem is detected by the timeout, the caller decides whether processing should be suspended or re-executed. Therefore, in general, the closer the timeout period is to the caller, the larger the value that is set.

In the correlative relationship graphic, the solid line shows the processing flow, and the dotted line shows the monitoring interval for the time monitoring function.

The green part is the application processing part.

HTTP Communication

Correlative relationship



*1 This is the wait time from the connection to the HTTP listener/web container until request processing starts. For details, refer to the following:

- "6.6 Web Container Tuning"
- "6.21 Performance Monitoring and Logging", "6.21.3 Analyzing the Log File"

Time Monitoring Items

Monitoring target time	Time monitoring feature	Explanation
(a)	<p>Web server connector send/receive timeout</p> <p><Settings Method></p> <p>The timeout is set for the following items:</p> <p>"6.6 Web Container Tuning"</p> <ul style="list-style-type: none"> - Web server connector send/receive timeout <p>At this time, configure the settings so that the following relationship is satisfied:</p> <p>(a) > (b) + (c) + the wait time in (*1) in the figure above</p>	<p>The web server connector monitors the wait time for the sending/receiving of data packets between the HTTP listener/web connector.</p> <p>Note</p> <p>This item will be monitored by the web server connector only in operations where the web server (web server connector) is used.</p> <p>At this time, the web server connector corresponds to "Client" in the figure above.</p>
(b)	<p>HTTP listener timeout</p> <p><Settings Method></p> <p>The timeout is set for the following items:</p> <ul style="list-style-type: none"> - "HTTP Service Definition Items" - Item name: Timeout - Property name: connectionUploadTimeout 	<p>The HTTP listener/web connector monitor the wait time for the receiving of data packets from the client.</p>

Monitoring target time	Time monitoring feature	Explanation
(c)	<p>Maximum Application Processing Time</p> <p><Settings Method></p> <p>The timeout is set for the following items:</p> <ul style="list-style-type: none"> - "Process Control Definition Items" <ul style="list-style-type: none"> - Item name: Maximum Application Processing Time 	<p>The processing time from the calling of the user application until the response is sent is monitored.</p> <p>The monitoring target time also includes the time to read the request message body.</p>

 **Point**

Resolving Problems

If the problems shown below occur frequently, take the action stated.

- Problem: IJServer12035 or IJServer12044 is output to the web server connector log
Action: Increase the value set for (a)
- Problem: ISJEE_OM1005 or ISJEE_OM1020 is output to the event log/system log
Action: Increase the value set for (c)

If the problems still occur, the processing capacity of the server may have been exceeded. Consider either installing additional servers or replacing the server with one that has better performance.

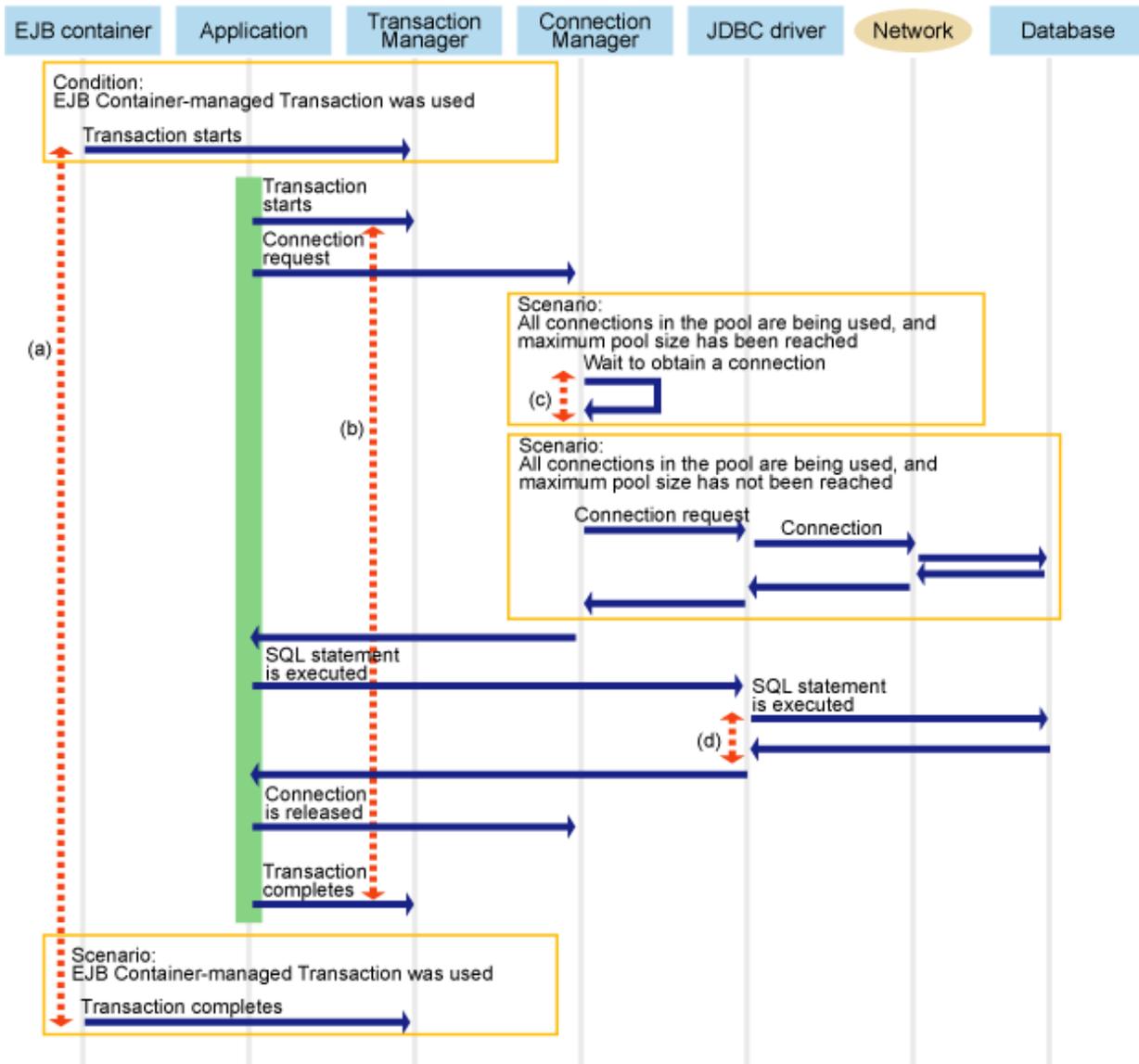
 **Note**

If the following conditions apply, the process will shut down.

- (b) > (c), and
- "true" is set for the process control definition item [Behavior when the maximum application processing time is exceeded], and
- "Send request message body" in the correlation graphic does not complete even if the value set for (c) was exceeded

IIOB Communication

Correlative relationship



Time monitoring items

Time monitoring interval	Time monitoring function
(a)	EJB container transaction completion time monitoring function
(b)	Transaction service transaction timeout
(c)	JDBC Connection Pool maximum wait time
(d)	JDBC Connection Pool statement timeout

6.20 Monitoring Information

The operation information for server instances that are running can be referenced in the Interstage Java EE Admin Console. Accordingly, it is possible to detect bottlenecks and confirm the effects of performance tuning.

The operation information shown below is output. For details on the meanings of each item, refer to the explanation that is displayed together with the item.

Displayed item	Explanation
Runtime	The process information, such as Java VM information, is displayed.

Displayed item	Explanation
Application	Information for each application deployed to the server instance is displayed.
Resource	Information for each resource enabled in the server instance is displayed.
Transaction	Information for each transaction running in the server instance is displayed.

When monitoring is enabled, set "LOW" or "HIGH" for each item in the monitored service settings.

The UpTime (up time) and HeapSize (heap size) Java VM information that is displayed, is displayed as the default information.

By specifying "HIGH" instead of "LOW", a large amount of information can be displayed. However, performance will suffer if a large number of items is displayed. For this reason, only enable the required monitoring information.

By using the monitoring and logging feature, the displayed information can also be output to the log. For details on the monitoring and logging feature, refer to "[6.21 Performance Monitoring and Logging](#)".

6.20.1 Tip

JDBC Resource/JMS/Connector Resource Monitoring Information

The information when the get connection request is executed for each resource of the ConnectionFactory on the server instance will be reflected as the JDBC resource/JMS/connector resource monitoring information. For this reason, the following information will not be reflected.

- Connections used when receiving Message-driven Bean messages

Information about connections used in the receiving of Message-driven Bean messages is not reflected in the JMS/connector resource monitoring information. In the Message-driven Bean, one connection to the message broker will be generated when the Message-driven Bean starts up, and this connection will be used.

To check the number of connections in the JMS/connector resource monitoring information, in addition to the information that is displayed, determine that the number of connections that has been used is the same as the number of Message-driven Beans that are running.

- Connections used in client applications

The connection information that is used in the client application (such as the Java EE application client) will not be reflected in the server instance monitoring information.

6.21 Performance Monitoring and Logging

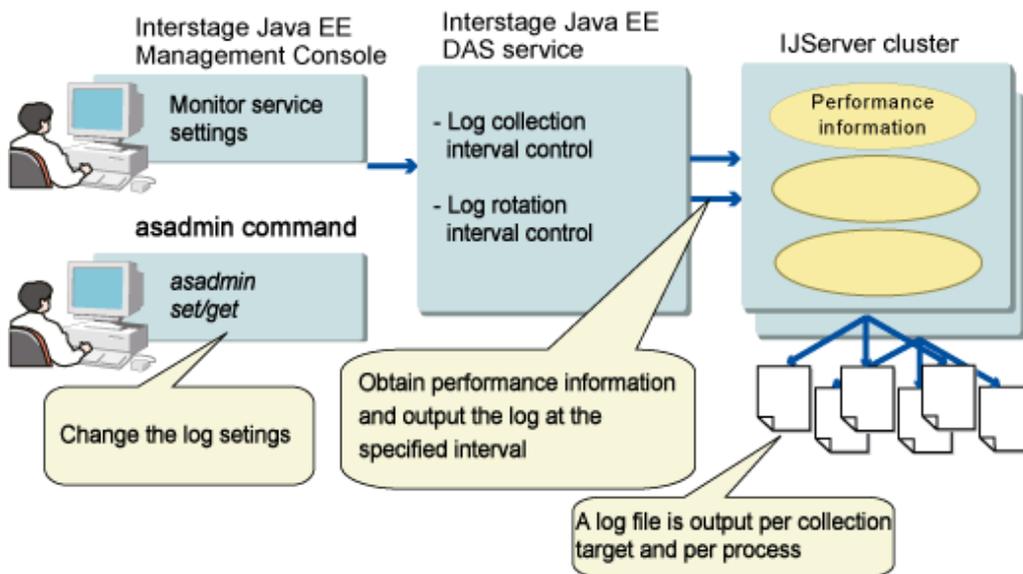
A function that logs the IJServer cluster performance information is provided. Using this function, the performance information for JavaVM and JDBC Data Sources is collected periodically and the results can be output to a log file. The log file is generated in CSV format. Therefore the information can be easily analyzed using general applications such as Excel, which is also useful for the accumulation of statistical data.

IJServer cluster monitoring and logging uses the asadmin command, as shown in the diagram below.

If IJServer cluster monitoring and logging is enabled using the asadmin command set subcommand or the Interstage Java EE Admin Console, the definition change event is notified to each server instance of the IJServer cluster via Interstage Java EE DAS service.

In the server instance process, the performance information is output to an CSV format file at the specified time interval.

If the monitoring and logging setting is disabled, the performance information is not output.



Impact on Operations

Monitoring and collecting performance information while the IJServer cluster is running means a record of activity is available, therefore troubleshooting errors should be relatively easy and straightforward.

However, as the information is output to a file, the amount of Java VM heap memory and CPU used will increase slightly. Performance may be affected if large amounts of data is frequently output to the log file. Evaluate the affect of monitoring during testing, and alter the frequency and collect the log at intervals that do not affect operations.

6.21.1 Procedures for Performance Monitoring

The following procedures for performance monitoring and logging are provided below.

- Start Monitoring and Logging
- Stop Monitoring and Logging
- Accessing the Log File
- When Interstage Operation Management service stops

Start Monitoring and Logging

To start monitoring and logging, change the monitoring level of "Monitored Service" according to the item to be monitored to enable the monitoring and logging setting.

1. Change the monitoring level.

Before starting the IJServer cluster, use the `asadmin` command set subcommand, to set the monitoring level to "LOW" or "HIGH" for the performance information to be monitored from the IJServer cluster "Monitored Service" definition items.

For example, to monitor the Java VM performance information, perform the following operation:

```
asadmin set IJServer001.monitoring-service.module-monitoring-levels.jvm=LOW
```

2. Enable monitoring and logging.

Use the `asadmin` command to enable the IJServer cluster monitoring and logging settings.

```
asadmin set IJServer001.monitoring-service.logging-enabled=true
```

Point

- The output of the performance information through monitoring and logging is only performed when the target IJServer cluster is running.
- If a setting was changed while the IJServer cluster was running, the value that was set will be reflected immediately, and the performance information will be output to the log file after the specified collection interval is reached.

Monitoring and Logging End Operation

Use the asadmin command to disable the monitoring and logging setting.

```
asadmin set IJServer001.monitoring-service.logging-enabled=false
```

Note

In the monitoring and logging end operation, there is no need to change the monitor level. If there is no need to monitor performance information using the "LOW" or "HIGH" settings, set the monitor level to "OFF".

Monitoring Operation (Collect Logs at Specific Times)

To collect performance information at specific times only, for example for problem investigation, start monitoring and logging after starting the IJServer cluster as shown below.

1. Start the IJServer cluster.
Start the IJServer cluster using the Interstage Java EE Admin Console or the asadmin command start-cluster subcommand.
2. Change the monitor level.
Change the monitor level using the Interstage Java EE Admin Console or the asadmin command set subcommand.
3. Start monitoring and logging.
Enable the monitoring and logging settings using the Interstage Java EE Admin Console or the asadmin command set subcommand.
4. Analyze the performance information.
Analyze the information that was output, using Microsoft(R) Excel for example.
5. End monitoring and logging.
Disable the monitoring and logging settings using the Interstage Java EE Admin Console or the asadmin command set subcommand.
6. Repeat steps 3 to 5.
7. Stop the IJServer cluster.
Stop the IJServer cluster using the Interstage Java EE Admin Console or the asadmin command stop-cluster subcommand.

Monitoring Operation (Collect Logs Continuously)

To continuously collect logs to verify the validity of the performance tuning, start IJServer after enabling the monitoring and logging settings as shown below.

1. Change the monitoring and logging settings.
Enable the monitoring and logging settings by changing the monitor level using the Interstage Java EE Admin Console or the asadmin command set subcommand.
2. Start the IJServer cluster.
Start the IJServer cluster using the Interstage Java EE Admin Console or the asadmin command start-cluster subcommand.

3. Analyze the performance information.

Analyze the information that was output, using Microsoft(R) Excel for example.

4. Stop the IJServer cluster.

Stop the IJServer cluster using the Interstage Java EE Admin Console or the asadmin command stop-cluster subcommand.

5. Repeat steps 2 to 4.



Note

Memory for Interstage Java EE DAS services

If the IJServer cluster or Interstage Java EE DAS service monitoring service definition item setting has been enabled so that monitoring and logging can be used, Interstage Java EE DAS service memory will be used according to the number of server instances and applications that have already been deployed.

If the monitoring service setting has been enabled, check that there is sufficient memory in the Interstage Java EE DAS service. If there is insufficient memory, refer to "[6.18 Interstage Java EE DAS Service Heap Size and Address Space](#)" before taking action.

6.21.2 The Log File

The following details about the log file are provided below:

- [Log File Name](#)
- [File Name after Rotation](#)
- [Log File Lifecycle](#)
- [File Access Authority](#)
- [Output Directory](#)

Log File Name

The log file that stores performance information is created for each process and collection target.

The file name conforms to the following naming convention.

```
monitor-[collection target name].log
```

The list of file names is as follows.

File	File name
Java VM information log file	monitor-jvm.log
HTTP connection queue information log file	monitor-connectionqueue.log
HTTP listener information log file	monitor-httplistener.log
IIOP connection information log file	monitor-connection.log
Thread pool information log file	monitor-threadpool.log
Stateless session bean information log file	monitor-statelesssession.log
Stateful session bean information log file	monitor-statefulsession.log
Message-driven bean information log file	monitor-messagedriven.log
Entity bean information log file	monitor-entitybean.log
JDBC connection pool information log file	monitor-jdbcpool.log
Transaction information log file	monitor-transaction.log
JMS/connector connection pool information log file	monitor-connectorpool.log

File Name after Rotation

The log file is rotated at fixed intervals. After rotation, the log file is backed up with the rotation time and date added to the file name, as shown below. The time and date is appended to the end of the log file name. The log file name and the time and date string are separated with a under bar ("_").

```
monitor-[collection target name].log_YYYY_MM_DD-hh_mm_ss
```

The time and date is represented as follows.

YYYY	The year is displayed as a 4-digit number (0000 - 9999).
MM	The month is displayed as a 2-digit number (01 - 12).
DD	The date is displayed as a 2-digit number (01 - 31).
hh	The hour is displayed as a 2-digit number (00 - 23).
mm	Minutes are displayed as a 2-digit number (00 - 59).
ss	Seconds are displayed as a 2-digit number (00 - 59).



Example

```
monitor-jvm.log_2006_06_24-01_00_00
```

Log File Lifecycle

When the IJServer cluster process outputs the log, if the file that is explained in "[Log File Name](#)" does not exist a new file is created. The log file will be rotated if the following conditions apply. The rotation type, start time, and size can be set as definition items before monitoring and logging is started. For details, refer to "asadmin" in the "Java EE Operation Commands" chapter.

Rotation conditions

- When the rotation type is 'size':
 - If the log file size reaches the rotation size.
- When the rotation type is 'time':
 - If the IJServer cluster process is running at the rotation time.
 - When the log is collected, the previous log file remains in the log output directory and the timestamp of that file is earlier than the previous rotation date.

Rotation is performed as follows.

1. The existing log file is backed up with the file name defined in "[File Name after Rotation](#)".
2. A new file is created with the file name defined in "[Log File Name](#)".
3. If the number of files backed up is equal to or greater than the number of log file generations, files with the earliest update time and date will be deleted. Old backup files will be deleted until the number of backup files remaining equals "Number of generations".

File Access Authority Solaris32/64 Linux32/64

The log file owner is also the IJServer cluster start user, and the file authority is "644".

Output Directory

The monitoring and logging log file is output to the IJServer cluster log output directory.

For details on the IJServer cluster log output directory, refer to "IJServer Cluster File Configuration" in the "Functionality Provided in the Java EE Application" chapter.

6.21.3 Analyzing the Log File

Information collected in the log file can be analyzed as detailed below.

File Format

The log file is output in CSV format (separated by commas) as follows.

```
D1 , D2 , D3 , D4 , D5 , . . .
```

File Contents

The log file contains the information described in the sections below, and logging commences when IIServer cluster starts up.

The time and date format is "DD/MM/YYYY hh:mm:ss.SSS".

Element	Format
DD	The date is displayed as a 2-digit number (01-31).
MM	The month is displayed as a 2-digit number (01-12).
YYYY	The year is displayed as a 4-digit number (0000-9999).
hh	The hour is displayed as a 2-digit number (00-23).
mm	Minutes are displayed as a 2-digit number (00-59).
ss	Seconds are displayed as a 2-digit number (00-59).
SSS	Milliseconds are displayed as a 3-digit number (000-999).



Example

```
24/06/2006 01:00:00.200
```

The format of the "Milliseconds" unit is "h:mm:ss.SSS".

H	The hour is displayed as a variable digit number (0-). When this value is 0, it is displayed as "0".
mm	Minutes are displayed as a 2-digit number (00-59).
ss	Seconds are displayed as a 2-digit number (00-59).
SSS	Milliseconds are displayed as a 3-digit number (000-999).



Example

```
0:00:00.200
```

Information is organized into sections within the log file (D1, D2 etc). The D1, D2 etc section numbers in each table below corresponds to the D1, D2 sections in the log file.

The first item will be the time and date that the performance record was collected for the corresponding item.

To output the performance information, the monitoring level of the information to be output (Module monitoring level) must be specified in the "configs.config.monitoring-service" definition item of the asadmin command set subcommand.

List of Performance Information

- 1) [Java VM Information](#)
- 2) [HTTP Connection Queue Information](#)
- 3) [HTTP Listener Information](#)

- 4) IIOP Connection Information
- 5) Thread Pool Information
- 6) Stateless Session Bean Information
- 7) Stateful Session Bean information
- 8) Message-driven Bean Information
- 9) Entity Bean Information
- 10) JDBC Connection Pool Information
- 11) Transactions
- 12) JMS/Connector Connection Pool Information

Explanation of the Performance Information

1) Java VM Information

The following information is collected for the Java VM used to run the application.

Section number	Contents	Conditions for collection
D1	The time and date the information was collected	
D2	Instance name	
D3	Process ID	
D4	Java VM start time (Unit: Milliseconds)	
D5	Memory allocation pool lower limit (Unit: Bytes)	
D6	Memory allocation pool upper limit (Unit: Bytes) (*1)	
D7	Memory allocation pool minimum (Unit: Bytes)	
D8	Memory allocation pool maximum (Unit: Bytes) (*1)	
D9	Memory allocation pool current value (Unit: Bytes)	
D10	Perm space upper limit (Unit: Bytes)	
D11	Perm space minimum usage (Unit: Bytes)	
D12	Perm space maximum usage (Unit: Bytes)	
D13	Perm space current usage (Unit: Bytes)	
D14	Garbage Collection occurrence count	
D15	Garbage Collection processing total time (Unit: Milliseconds)	

*1 The memory allocation pool upper limit increases and decreases dynamically, therefore the memory allocation pool maximum value may sometimes exceed the memory allocation pool size upper limit.

2) HTTP Connection Queue Information

The following information is collected for the HTTP connection queue.

Section number	Contents	Conditions for collection
D1	The time and date information was collected	
D2	Instance name	
D3	Process ID	

Section number	Contents	Conditions for collection
D4	Number of times the HTTP request could not be stored because the queue is full	
D5	Number of HTTP requests that are currently in the queue	
D6	The average number of HTTP requests in the queue over the previous 15 minutes	
D7	The average number of HTTP requests in the queue in the previous 1 minute	
D8	The average number of HTTP requests in the queue in the previous 5 minutes	
D9	Total number of received HTTP requests	
D10	Total number of HTTP requests stored in the queue One HTTP request may be stored in the queue multiple times. For this reason, this value may be greater than "Total number of received HTTP requests" in D9.	
D11	Queue ID	
D12	Maximum queue size	
D13	Maximum number of HTTP requests that are in the queue simultaneously	

3) HTTP Listener Information

The following information is collected for the HTTP listener.

Section number	Contents	Conditions for collection
D1	The time and date information was collected	
D2	Instance name	
D3	Process ID	
D4	Cumulative total value for bytes received by all the request processors (Unit: Bytes)	
D5	Cumulative total value for bytes sent by all the request processors (Unit: Bytes)	
D6	Not used	
D7	Not used	
D8	Not used	
D9	Not used	
D10	Not used	
D11	Not used	
D12	Not used	
D13	Not used	
D14	Not used	
D15	Not used	
D16	Not used	
D17	Not used	
D18	Current number of HTTP requests received by the HTTP listener If this information cannot be used, this value will be 0.	

Section number	Contents	Conditions for collection
D19	Total number of responses containing other response code	
D20	Current number of request processing threads in the HTTP listener	
D21	Current number of request processing threads in use	
D22	Cumulative total value for the error count This represents the count when the response code is 400 or greater.	
D23	Maximum number of HTTP requests that can be received by the HTTP listener simultaneously If this information cannot be used, this value will be 0.	
D24	Maximum number of unused request processing threads that can exist	
D25	Maximum number of request processing threads created by the listener	
D26	Maximum value for the thread processing time (Unit: Milliseconds)	
D27	Minimum number of unused request processing threads that can exist	
D28	Cumulative total value for the time required for processing of all the requests (Unit: Milliseconds)	
D29	Total number of requests processed up until that point	

How to invoke the average processing time for the request processing thread

D28 (Cumulative total value for the time required for processing of all the requests) / D29 (Total number of requests processed up until that point)

4) IIOp Connection Information

The following information is collected for the ORB connection.

Section number	Contents	Conditions for collection
D1	The time and date when the information was collected	
D2	Instance name	
D3	Process ID	
D4	Of the connections to ORB, the total number of connections in an idle state	
D5	Of the connections to ORB, the total number of connections that are in use	
D6	The lower limit of the connections to ORB	
D7	The higher limit of the connections to ORB	
D8	Minimum number of connections to ORB	
D9	Maximum number of connections to ORB	
D10	Total number of connections to ORB (*1)	

*1 Depending on the timing of the information collection, the result may not be "D4 + D5 = D10".

5) Thread Pool Information

This is the performance information for the EJB container thread pool (*1). Information is output for each thread pool.

When a thread pool is added, the IJServer cluster must be restarted to enable the monitor information.

*1 This is mainly used when the EJB container has performed a call using the thread control access pattern. For details on EJB container thread pools, refer to "6.8.1 Thread Pooling".

Section number	Contents	Conditions for collection
D1	The time and date information was collected	
D2	Instance name	
D3	Process ID	
D4	Thread pool name	
D5	Minimum wait time until the requests in the queue will be processed (Unit: Milliseconds)	
D6	Maximum wait time until the requests in the queue will be processed (Unit: Milliseconds)	
D7	Average wait time until the requests in the queue will be processed (Unit: Milliseconds)	
D8	Shortest time for the average completion time of one task (Unit: Milliseconds)	
D9	Longest time for the average completion time of one task (Unit: Milliseconds)	
D10	Average completion time of one task (Unit: Milliseconds)	
D11	The lower number of the request processing threads	
D12	The higher number of the request processing threads	
D13	Minimum number of request processing threads (*2)	
D14	Maximum number of request processing threads	
D15	Current number of request processing threads (*3)(*4)	
D16	Number of threads that can be used (*4)(*5)	
D17	Number of threads that have working status (*4)	
D18	Total number of work tasks added to the work queue up until that point. (*6) Note that, when one request is executed, at least one work item will be added to the work queue.	
D19	The lower number of the work items in the queue	
D20	The higher number of the work items in the queue	
D21	Minimum number of the work items in the queue	
D22	Maximum number of the work items in the queue	
D23	Number of the work items in the queue	

*2 The thread does not exist immediately after the thread pool is created, therefore 0 will always be output.

*3 Depending on the timing of the information collection, the result may not be "D16 + D17 = D15".

*4 This refers to the number of threads at the point when the performance information is collected, not the number of threads per unit of time.

*5 The number of threads that can be used may exceed the estimated number, however this does not pose a problem because this state is temporary.

*6 This is not the number of task items per unit of time. The number of task items per unit of time can be calculated by obtaining the difference with the previous collection value.

6) Stateless Session Bean Information

The following information is collected for stateless session bean performance and information will be collected for each bean.

- Information about "MEjbApp" will be output even if a stateless session bean is not deployed to the specified IJServer cluster.

- The HotDeploy application information will be reflected the next time this information is collected.
- Information about applications for which initialization failed is not output.

Section number	Contents	Conditions for collection
D1	The time and date information was collected	
D2	Instance name	
D3	Process ID	
D4	Application name	If the application was deployed by the EAR file package, the application name is output without the file extension. If the application was deployed by the JAR file standalone, the ejb-jar file name is output without the file extension.
D5	EJB module name	If the application was deployed by the EAR file package, the ejb-jar file name is output without the file extension.
D6	Stateless Session Bean name	
D7	Minimum number of instances in the pool	
D8	Maximum number of instances in the pool	
D9	Current number of instances in the pool	
D10	Number of times the EJB create method is called	
D11	Number of times the EJB remove method is called	

7) Stateful Session Bean information

The following information is output for stateful session bean performance and information will be output for each bean.

- Information about "MEjbApp" will not be output even if a stateful session bean is not deployed to the specified IJServer cluster.
- The HotDeploy application information will be reflected the next time this information is collected.
- Information about applications for which initialization failed is not output.

Section number	Contents	Conditions for collection
D1	The time and date information was collected	
D2	Instance name	
D3	Process ID	
D4	Application name	If the application was deployed by the EAR file package, the application name is output without the file extension.

Section number	Contents	Conditions for collection
		If the application was deployed by the JAR file standalone, the ejb-jar file name is output without the file extension.
D5	EJB module name	If the application was deployed by the EAR file package, the ejb-jar file name is output without the file extension.
D6	Stateful Session Bean name	
D7	Minimum value for the number of passivated instances	
D8	Maximum value for the number of passivated instances	
D9	Number of passivated instances	
D10	Minimum number of Bean instances in an idle state in the cache	
D11	Maximum number of Bean instances in an idle state in the cache	
D12	Current number of Bean instances in an idle state in the cache	
D13	Number of times the EJB create method is called	
D14	Number of times the EJB remove method is called	

8) Message-driven Bean Information

The following information is collected for message-driven bean performance and information will be collected for each bean.

- Information about "MEjbApp" will not be output if a message-driven bean is not deployed to the specified IJServer cluster.
- The HotDeploy application information will be reflected the next time this information is collected.
- Information about applications for which initialization failed is not output.

Section number	Contents	Conditions for collection
D1	The time and date information collected	
D2	Instance name	
D3	Process ID	
D4	Application name	
D5	EJB module name	
D6	Message-driven Bean name	
D7	Number of messages received for the Message-driven Bean	
D8	Number of times the Message-driven Bean create method is called	
D9	Number of times the Message-driven Bean remove method is called	

9) Entity Bean Information

The following information is output for entity bean performance and information will be output for each bean.

- Information about "MEjbApp" will not be output even if an entity bean is not deployed to the specified IJServer cluster.
- The HotDeploy application information will be reflected the next time this information is collected.

- Information about applications for which initialization failed is not output.

Section number	Contents	Conditions for collection
D1	The time and date information was collected	
D2	Instance name	
D3	Process ID	
D4	Application name	
D5	EJB module name	
D6	Entity Bean name	
D7	Minimum number of instances in the pool	
D8	Maximum number of instances in the pool	
D9	Current number of instances in the pool	
D10	Minimum number of Bean instances in an idle state in the cache	
D11	Maximum number of Bean instances in an idle state in the cache	
D12	Current number of Bean instances in an idle state in the cache	

Note: Performance information about applications used by the following system is output:

__ejb_container_timer_app

10) JDBC Connection Pool Information

This is the JDBC Connection Pool performance information. This information is output for each Connection Pool individually.

This information will not be output if there are no JDBC resources associated with the specified IJServer cluster. Note that this information is output after the association is performed.

When pooling is disabled, some of the information will not be output. In this case, "0" is always output for "-" items in the "When pooling is disabled" cell.

Cells where the background color is green are items with a HIGH monitor level.

Section number	Content	Output when pooling is disabled	Conditions for collection
D1	Date/time the performance information for the corresponding record was collected	yes	
D2	Instance name	yes	
D3	Process ID	yes	
D4	JDBC Connection pool name	yes	
D5	Average wait time for the connection request (Unit: Milliseconds) (*1)	yes	
D6	Shortest wait time for the connection request (Unit: Milliseconds) (*1)	yes	
D7	Longest wait time for the connection request (Unit: Milliseconds) (*1)	yes	
D8	Wait time for connection requests received recently (Unit: Milliseconds) (*1)	yes	

Section number	Content	Output when pooling is disabled	Conditions for collection
D9	Number of logical connections that were obtained from the pool (*1)	yes	
D10	Number of physical connections that were created (*2)	yes	
D11	Number of physical connections that were destroyed (*2)	yes	<ul style="list-style-type: none"> - When pooling is enabled, the physical connection will be destroyed at the following times: <ul style="list-style-type: none"> - When the connection was destroyed because of an idle timeout - When the connection was destroyed because connection verification failed. When "For all trouble" is enabled, the connection will be destroyed in all cases, not only because connection verification has failed. - When pooling is disabled, the physical connection will be destroyed at the following times: <ul style="list-style-type: none"> - When the close method is executed for the Connection object in the application. However, if the connection has been cached in the transaction, the physical connection will be destroyed when the transaction completes.
D12	Number of physical connections for which verification failed (*1)(*2)	-	<ul style="list-style-type: none"> - When connection verification is enabled, and connection verification fails - When connection verification is enabled, "For all trouble" is enabled, and it is assumed that the connection has failed
D13	The minimum number of physical connections that are not used (*2)	-	
D14	The maximum number of physical connections that are not used (*2)	-	
D15	The current number of physical connections that are not used (*2)	-	
D16	Number of physical connections for which authentication information matching failed (*1)(*2)	yes	When connection matching failed
D17	Number of logical connections that were returned to the pool (*1)	yes	
D18	Number of physical connections for which authentication information matching succeeded (*1)(*2)	yes	When connection matching succeeded
D19	Number of physical connections that have timed out (*1)(*2)	-	When the connection request timeout occurs (Maximum wait time > 0)
D20	Minimum number of physical connections that are being used (*2)	yes	

Section number	Content	Output when pooling is disabled	Conditions for collection
D21	Maximum number of physical connections that are being used (*2)	yes	
D22	Current number of physical connections that are being used (*2)	yes	
D23	Number of connection requests in the queue that are waiting	-	When the maximum value for the number of connections in the pool is reached, meaning all connections are in use (*3)
D24	Number of connections for which leaks have occurred (*1)	yes	When a connection leak occurs

*1 This item is only output when the monitoring level is set to "HIGH".

*2 This physical connection is obtained from the JDBC driver. Normally, connections obtained from the JDBC driver are physical connections. When the pooling feature in the JDBC driver is used, the actual physical connection will be cached in the JDBC driver, therefore the connection that is obtained from the JDBC driver may not always be the actual physical connection.

*3 When pooling is disabled, the connection that is obtained from the Connection Pool has no maximum pool size limit. For this reason, when pooling is disabled, the number of connections in the pool will not reach the maximum value.

This may not always be reflected in the monitoring information, even when the JDBC resource connection is obtained. For details, refer to "6.20 Monitoring Information", "6.20.1 Tip".

11) Transactions

The following information is collected about transactions.

Section number	Contents	Conditions for collection
D1	The time and date when the performance information was collected	
D2	Instance name	
D3	Process ID	
D4	Number of transactions that were rolled back	
D5	Number of transactions that were committed	
D6	Number of active transactions	

12) JMS/Connector Connection Pool Information

The following information is output for the connection pool for the JMS Connection Factory.

If no resources are associated with the IJServer cluster, no information will be output. Information is only output after resources are associated.

Cells where the background color is green are items with a HIGH monitor level.

Section number	Contents	Conditions for collection
D1	The time and date when the information was collected	
D2	Instance name	
D3	Process ID	
D4	Connector Connection Pool name	
D5	Average wait time for the connection request (Unit: Milliseconds) (*1)	

Section number	Contents	Conditions for collection
D6	Shortest wait time for the connection request (Unit: Milliseconds) (*1)	
D7	Longest wait time for the connection request (Unit: Milliseconds) (*1)	
D8	Wait time for connection requests received recently (Unit: Milliseconds) (*1)	
D9	Number of logical connections that were obtained from the pool (*1)	
D10	Number of physical connections that were created	
D11	Number of physical connections that were destroyed	When the connection was destroyed because of an idle timeout
D12	Number of physical connections for which verification failed (*1)	<ul style="list-style-type: none"> - When connection verification is enabled, and connection verification fails - When connection verification is enabled, "For all trouble" is enabled, and it is assumed that the connection has failed
D13	Minimum number of physical connections that are not used	
D14	Maximum number of physical connections that are not used	
D15	Current number of physical connections that are not used	
D16	Number of physical connections for which authentication information matching failed (*1)	When connection matching failed
D17	Number of logical connections that were returned to the pool (*1)	
D18	Number of physical connections for which authentication information matching succeeded (*1)	When connection matching succeeded
D19	Number of physical connections that have timed out (*1)	When the connection request timeout occurs (Maximum wait time > 0)
D20	Minimum number of physical connections that are being used	
D21	Maximum number of physical connections that are being used	
D22	Current number of physical connections that are being used	
D23	The number of connection requests in the queue that are on standby	When the maximum number of connections in the pool is reached, and all connections are in use
D24	These items are not collected. (*1)	

*1 This item is only output when HIGH is set for the monitor level.

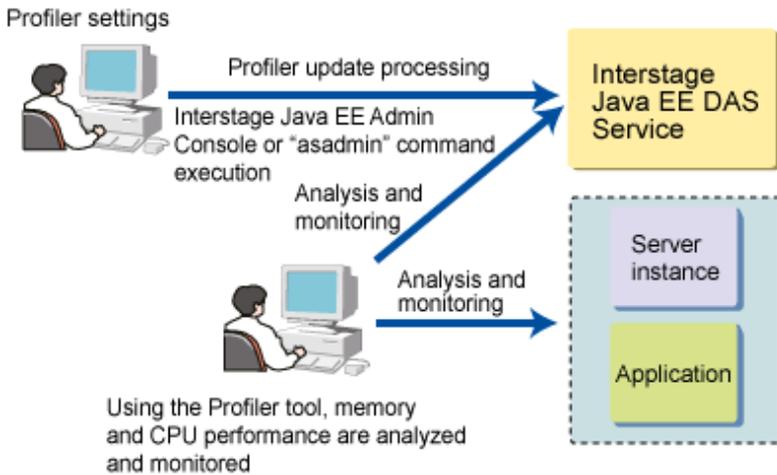
This may not always be reflected in the monitoring information, even when the JMS or connector resource connection is obtained. For details, refer to "6.20 Monitoring Information", "6.20.1 Tip".

6.22 Profiler Settings

Use the Profiler Settings to manage the settings for the Profiler Tool.

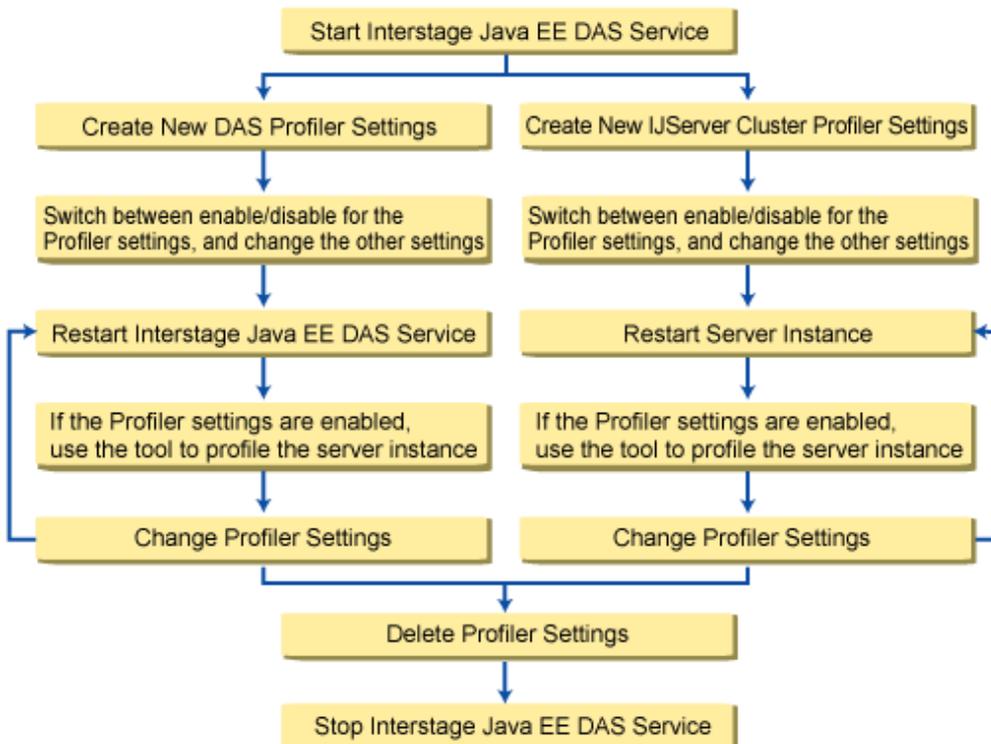
It is possible to switch between the Profiler enable/disable settings if necessary. Therefore, the Profiler can be enabled for the operations where analysis will be performed when the Profiler is disabled (as it is in the normal state) and there is a need to parse a performance problem, for example.

For details on the definition items, refer to "Java VM Definition Items" in the "List of Definition Items" chapter".



6.22.1 How to Operate the Profiler Setup

The flow of the basic Profiler setup operation is shown below.



Creating the Profiler Settings

Use the Interstage Java EE Admin Console or the asadmin command to create the Profiler Settings.

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- "asadmin", "create-profiler Subcommand" in the "Java EE Operation Commands" chapter

Deleting the Profiler Settings

Use the Interstage Java EE Admin Console or the asadmin command to delete the Profiler Settings.

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- "asadmin", "delete-profiler Subcommand" in the "Java EE Operation Commands" chapter

Creating the JVM Options Under the Profiler Settings

Use the Interstage Java EE Admin Console or the asadmin command to create the JVM options under the Profiler Settings.

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- "asadmin", "create-jvm-options Subcommand" in the "Java EE Operation Commands" chapter

Deleting the JVM Options from the Profiler Settings

Use the Interstage Java EE Admin Console or the asadmin command to delete the JVM options from the Profiler Settings.

For details on these operations, refer to the following:

- Interstage Java EE Admin Console Help
- "asadmin", "delete-jvm-options Subcommand" in the "Java EE Operation Commands" chapter

6.23 Required Resources

This section explains the required resources.

6.23.1 Disk Capacity

Functionality: [Java EE](#)

Directory	Disk capacity (Unit: Mbytes)	Remarks (intended application)
Windows32/64 [Java EE common directory]\work Solaris32/64 Linux32/64 [Java EE common directory]/work	Deployment file size x 2	Temporary area that is used for deployment
[Java EE common directory]	Total size of the resources after the deployment file is extracted x 2	Formula for Java EE application resources
Windows32/64 [Java EE common directory]\domains \interstage\logs\verifier-results Solaris32/64 Linux32/64 [Java EE common directory]/domains/ interstage/logs/verifier-results	Depends on the deployment module error	Area for storing the deployment module verification result
Server log (*1) Windows32/64 - When the IJServer cluster is used [Java EE common directory]	<ul style="list-style-type: none"> - When size rotation is specified Log file size x (log file generations saved + 1) - When time rotation is specified Output size per day x (Number of log file generations to be saved + 1) 	

Directory	Disk capacity (Unit: Mbytes)	Remarks (intended application)
<p>\nodeagents\ijna\[server instance name]\logs</p> <ul style="list-style-type: none"> - When the Interstage Java EE DAS service is used [Java EE common directory]\domains\interstage\logs - When the Interstage Java EE Node Agent service is used [Java EE common directory]\nodeagents\ijna\agent\logs <p>Solaris32/64 Linux32/64</p> <ul style="list-style-type: none"> - When the IJServer cluster is used [Java EE common directory]/nodeagents/ijna/[server instance name]/logs - When the Interstage Java EE DAS service is used [Java EE common directory]/domains/interstage/logs - When the Interstage Java EE Node Agent service is used [Java EE common directory]/nodeagents/ijna/agent/logs 	<p>Regarding the output size per day, consider the fact that the output size and the number of collections will vary depending on the content of the logs that are output by the application and on the business load. A log of approximately 0.016MB is output just in the start and end processing for the server instance.</p> <p>The log size and number of log file generations saved are values that were specified as logger definition items.</p>	
<p>Java VM log (*1)</p> <p>Windows32/64</p> <p>[Java EE common directory]\nodeagents\ijna\[server instance name]\logs</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/nodeagents/ijna/[server instance name]/logs</p>	<ul style="list-style-type: none"> - When size rotation is specified Log file size x (log file generations saved + 1) - When time rotation is specified Output size per day x (Number of log file generations to be saved + 1) <p>Regarding the output size per day, consider the fact that the output size and the number of collections will vary depending on the content of the logs that are output by the application and on the business load. A log of approximately 0.003MB is output just in the start and end processing for the server instance.</p> <p>The log size and number of log file generations saved are values that were specified as logger definition items.</p>	
<p>IJServer cluster HTTP trace log (*1)</p> <p>Windows32/64</p> <p>[Java EE common directory]\nodeagents\ijna\[server instance name]\logs\http</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/nodeagents/ijna/[server instance name]/logs/http</p> <p>Interstage Java EE DAS service HTTP trace log</p>	<p>HTTP trace log size x (Number of log file generations to be saved + 1)</p> <p>The log size and number of log file generations saved are values that were specified as HTTP service definition items.</p>	

Directory	Disk capacity (Unit: Mbytes)	Remarks (intended application)
<p>Windows32/64</p> <p>[Java EE common directory]\domains \interstage\logs\http</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/domains/ interstage/logs/http</p>		
<p>IJServer cluster HTTP access log (*1)</p> <p>Windows32/64</p> <p>[Java EE common directory]\nodeagents \ijna\[server instance name]\logs\http</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/nodeagents/ ijna/[server instance name]/logs/http</p> <p>Interstage Java EE DAS service HTTP access log</p> <p>Windows32/64</p> <p>[Java EE common directory]\domains \interstage\logs\http</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/domains/ interstage/logs/http</p>	<p>- When time rotation is specified</p> <p>Output size per time x number of collections per day x (log file generations saved + 1)</p> <p>- When size rotation is specified</p> <p>Log file size x (log file generations saved + 1)</p> <p>The log size, number of log file generations saved, and format are values that were specified as HTTP service definition items.</p>	
<p>Monitor logging log (*1) (*2)</p> <p>Windows32/64</p> <p>[Java EE common directory]\nodeagents \ijna\[server instance name]\logs</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/nodeagents/ ijna/[server instance name]/logs</p>	<p>- When time rotation is specified</p> <p>Output size per time x number of collections per day x (log file generations saved + 1)</p> <p>- When size rotation is specified</p> <p>Log file size x (log file generations saved + 1)</p> <p>Note:</p> <p>Although this varies depending on the number of monitored information types and the monitoring level, the output size per time is approximately 0.0001M-0.0005MB per log file.</p> <p>The number of collections per day is determined by the collection interval that was set in the monitoring service definition item when the command starts up.</p> <p>The unit specified for the collection interval is 1 minute, therefore the number of collections per day can be invoked using "1440/collection interval".</p> <p>The log file size is what was specified in the log settings.</p> <p>The number of log file generations saved is what was specified in the log settings.</p>	
<p>Windows32/64</p>	<p>Size of the resources that unpack the deployed enterprise application (.ear)</p>	

Directory	Disk capacity (Unit: Mbytes)	Remarks (intended application)
<p>[Java EE common directory]\domains\interstage\applications\j2ee-apps</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/domains/interstage/applications/j2ee-apps</p>		
<p>Windows32/64</p> <p>[Java EE common directory]\domains\interstage\applications\j2ee-modules</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/domains/interstage/applications/j2ee-modules</p>	<p>Size of the resources that unpack the following applications to be deployed:</p> <ul style="list-style-type: none"> - Web applications (.war) - EJB modules (.jar) - Connector modules (.rar) - Application clients (.jar) 	
<p>Windows32/64</p> <p>[Java EE common directory]\domains\interstage\generated</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/domains/interstage/generated</p>	<p>This depends on the configuration of the application to be deployed.</p> <p>When deploying large or numerous deployment modules, it is recommended that you deploy the application in the development environment to check the generated resources under this directory first.</p>	
<p>Windows32/64</p> <p>[Java EE common directory]\commands</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/commands</p>	<p>Maximum 6MB</p>	
<p>Windows32/64</p> <p>[Java EE common directory]\domains\interstage\imq\instances\[broker instance name]</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/domains/interstage/imq/instances/[broker instance name]</p>	<p>Add the values calculated to the initial value (1MB).</p> <ul style="list-style-type: none"> - For each physical storage destination, calculate the following values, then add them together: $\text{max num of msgs} \times (\text{max size set for msg body} + \text{max size set for msg prop} + 0.0003) \times 2$ - Size set for the imq.log.file.rolloverbytes property $\times 10$ <p>When transactions are used:</p> <ul style="list-style-type: none"> - Total number of transactions $\times 0.002$ - With 'n' is used as the maximum number of messages received in the transaction: $n \times (512 + 32 \times n) \times \text{total num of transactions} \times 0.000001$ <p>When the Durable Subscription function is used:</p> <ul style="list-style-type: none"> - max num of durable subscribers $\times 0.003$ 	<p>To start up multiple message brokers, calculate the values shown in the previous column for each message broker and then add all of them to determine the disk space.</p>
<p>IIOP access log (*1)</p> <p>Windows32/64</p>	<p>IIOP access log size \times (Number of log file generations to be saved + 1) (*3)</p>	

Directory	Disk capacity (Unit: Mbytes)	Remarks (intended application)
<ul style="list-style-type: none"> - When the IJServer cluster is used [Java EE common directory] \nodeagents\ijna\[server instance name]\logs\iiop - When the Interstage Java EE DAS service is used [Java EE common directory]\domains \interstage\logs\iiop <p>Solaris32/64 Linux32/64</p> <ul style="list-style-type: none"> - When the IJServer cluster is used [Java EE common directory]/ nodeagents/ijna/[server instance name]/logs/iiop - When the Interstage Java EE DAS service is used [Java EE common directory]/domains/ interstage/logs/iiop 		
<p>Serialized file of the session</p> <p>Windows32/64</p> <p>[Java EE common directory]\nodeagents \ijna\[server instance name]\dat</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/nodeagents/ ijna/[server instance name]/dat</p>	(*4)	<p>When using session recovery</p> <p>This is required when the session is serialized on an environment that uses the session registry server.</p>
[Transaction log file folder]	Keypoint interval x 0.0005MB + 0.15MB	Transaction log file folder
[Session storage location]	<p>pasvtd Bean inst file size x num of pasvtd Bean insts</p> <p>The Bean instance file size and the passivated quantity will depend on the application deployed and application operation method.</p>	<p>We recommend carrying out EJB container definition tuning, load testing, and an application test-run to estimate how much disk space will be required. For details, refer to "6.8.2 Enterprise Bean Instance Caching" for these tasks.</p>

*1 This directory can be changed using the logger definition items.

*2 In the default, monitor logging is disabled, therefore a log is not output.

*3 The log size and number of log file generations saved are IIOP service definition item values. For details on the IIOP service definition items, refer to "Operating Environment-related Definition Items", "IIOP Service Definition Items" in the "List of Definition Items" chapter.

*4 If session recovery was used and session serialization was enabled, the serialized file of the session is generated in the storage destination that was specified in the session registry server environment settings. The disk space shown below is required for one web application that is deployed. (Unit: MB)

Windows32/64

(0.004 + (Data size maintained by the session + X + 0.004) x Number of sessions) x 2

Solaris32/64

(0.001 + (Data size maintained by the session + X + 0.001) x Number of sessions) x 2

Linux32/64

(0.004 + (Data size maintained by the session + X + 0.004) x Number of sessions) x 2

"Data size maintained by the session" is the total size of the objects and the keys which are set in the session attribute by the web application.

"X" is 0.001 + Data size maintained by the session x 0.05.

Note that the values above may increase or decrease, depending on the file system that is used.

Note also that the session registry server can be operated in Interstage Application Server Enterprise Edition.

6.23.2 Memory Usage

Java Heap/Permanent Generation Space

The Interstage Java EE DAS service Java Heap/Permanent generation space default values are as follows:

Type	Default value
Java Heap	<div style="display: flex; justify-content: space-between; align-items: center;"> Windows32/64 Solaris32 Linux32/64 </div> 512m <div style="display: flex; justify-content: space-between; align-items: center;"> Solaris64 </div> 768m
Permanent generation space	192m

The Java Heap/Permanent generation space size can be referenced/changed using the Interstage Java EE Admin Console or the asadmin command.

For details on how to reference or change these values, refer to the following in the "Java EE Operation Commands" chapter:

- "create-jvm-options Subcommand"
- "delete-jvm-options Subcommand"

Physical Memory Usage

Estimate the Interstage Java EE DAS service physical memory usage using the formula below:

```
[Java heap size]+[perm gen space size]+[num 1]+
( [IJServer clusters] x 22 + [server instances] x 10 + 82 ) x [num 2]
```

[num 1] and [num 2]

These values differ, depending on the platform used as listed below:

Platform	[num 1]	[num 2]
Windows(R)	300 MB	0.25 MB
Solaris	500 MB	1.0 MB
Linux	500 MB	0.5 MB

Check that the value that was calculated based on the number of IJServer clusters and server instances associated with those clusters, is below the upper limit for the process address space. If it exceeds the upper limit, look at reducing the number of IJServer clusters and server instances until the upper limit is not exceeded.

If the upper limit is exceeded and the Interstage Java EE DAS service cannot start, delete the IJServer cluster. For details, refer to "Operational Errors", "Interstage Java EE DAS Service Start Up Errors", "When the startup fails because there is insufficient memory", "2) Delete the IJServer cluster" in the "Troubleshooting" chapter.

6.23.3 System Resources

Solaris32/64 **Linux32/64**

This section explains the system resources required for running Interstage Java EE.

6.23.3.1 Setting the Web Server Connector System Resources

Solaris32/64 **Linux32/64**

To link the web server and the IJServer cluster, set the system parameters according to the relevant "System Resources required by a Web Server Connector" section in the "System Tuning" chapter of the Tuning Guide. At this time, read "IJServer cluster" for "IJServer WorkUnit".

Chapter 7 List of Definition Items

The Java EE runtime environment definition items are explained here.

Restarting the IJServer Cluster after a Definition was Changed

If the IJServer cluster operating environment or resource definition items were changed, then the IJServer cluster might need to be restarted.

For details regarding a required restart, refer to each definition item.

- If "Restart required" is "Yes"

This means that the IJServer cluster must be restarted for any changes to take effect if a definition is changed.

To change the definition of such an item in the IJServer cluster, the IJServer cluster must be stopped before the definition is changed, and then restarted after the change.

- If "Restart required" is "No"

This means that the IJServer cluster does not have to be restarted for any changes to take effect if a definition is changed.

If the definition of such an item is changed while the IJServer cluster is running, the new value will take effect immediately. The cluster can continue running during and after the change.

The Maximum String Length that can be Specified

The maximum string length that the user can specify for each definition item is 512, unless noted otherwise. Different length restrictions are described in the explanation of the definition item.

For definition items for which only a particular value (such as true/false) or a particular numerical range (such as 0-2147483647) can be specified, there is no size restriction - values outside the range will raise an error.

Input value checks when system properties are used

When system properties are used as definition item values, there will be no input value check used for string length or permitted characters.

To use a system property as a definition value, note the validity of the value specified as the system property.

Specifying DOS Device Names Windows32/64

Do not specify a DOS device name as a property that will be used as a file or directory name.



Example

Properties used as file or directory names

- IJServer cluster name
- Server instance name
- Log output directory
- Name of each application
- Database name
- Message broker instance name

Other

7.1 Domain Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Locale		Specify a valid locale using one of the formats below: <ul style="list-style-type: none"> - language - language_country For 'language', specify an ISO-639 code consisting of 2-digit lowercase. For 'country' specify an ISO-3166 code consisting of 2-digit uppercase.	The OS locale settings are overwritten. The locale specified for this item is valid in the following services/processes: <ul style="list-style-type: none"> - Interstage Java EE DAS service - Server instances under IJServer clusters 	Yes
Java version		JDK6.0	The Java version used in the Java EE environment is displayed. The Java EE environment must be initialized in order to change this item. For details, refer to "ijinit".	
admin password		The following character strings can be specified: Between 8 and 20 alphanumeric characters and symbols (0x21-0x7e), except for spaces and CTRL.	The admin password is changed. To change the admin password using commands, execute the asadmin command change-admin-password subcommand.	Yes

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand change-admin-password subcommand
Name of definition item in asadmin	Definition Items of the Domain

7.2 Interstage Java EE Node Agent Service Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Node Agent name	ijna	ijna	Interstage Java EE Node Agent service Node Agent name (ijna). This value cannot be changed.	
System JMX connector name	system	system	System JMX connector name (system) used by the Interstage Java EE Node Agent service. This value cannot be changed.	No

Item name	Default value	Range	Explanation	Restart required
Automatic IJServer cluster startup	true	- true - false	<p>Whether the IJServer cluster starts up automatically when the Interstage Java EE Node Agent service starts up is specified.</p> <ul style="list-style-type: none"> - true: All defined IJServer clusters start up automatically. - false: IJServer cluster does not start up automatically. <p> Note</p> <p>.....</p> <p>20 minutes after the IJServer cluster starts up automatically, the Interstage Java EE Node Agent service stops, and the IJServer cluster is forcibly stopped.</p> <p>.....</p>	No
Node Agent additional property				
JMX connector name	system	system	<p>Name of the connector used by the JMX connector to connect to the Interstage Java EE Node Agent service from another service (system).</p> <p>This value cannot be changed.</p>	
JMX connector protocol	rmi_jrmp	rmi_jrmp	<p>This is the protocol that is supported by JMX connector (rmi_jrmp).</p> <p>This value cannot be changed.</p>	Yes
JMX connector address	0.0.0.0	String	<p>When the JMX connector server stub is registered, it is specified in the IP address of the service.</p> <p>If there are multiple IP addresses (network interfaces) in the system, then specify a specific IP address that can be referenced from the connection server.</p> <p>To allow access from all network interfaces, specify '0.0.0.0'.</p>	Yes
JMX connector port	An available port	1-65535	<p>The connection port number of the RMI registry used by the JMX connector.</p> <p>Specify a port number that can be used in the system.</p> <p>Solaris32/64 Linux32/64</p> <p>Ports 1-1024 cannot be used if a Java EE application is operated by a general user.</p>	Yes
JMX connector realm name	Admin-realm	admin-realm	<p>Name of the security realm for the server running from this JMX connector.</p> <p>This value cannot be changed.</p>	Yes
JMX connector additional property				
Realm name	admin-realm	admin-realm	<p>Name (admin-realm) of the realm used by the Interstage Java EE Node Agent service. This value cannot be changed.</p>	
Realm class name	com.fujitsu.interstage.javaee.security.auth.realm.OSRealm	- com.fujitsu.interstage.javaee.security.auth.realm.OSRealm	<p>Class name of the realm used by the Interstage Java EE Node Agent service. Specify the same value as the Interstage Java EE DAS service and the IJServer cluster realm settings.</p>	No

Item name	Default value	Range	Explanation	Restart required
	s.OSRealm	<ul style="list-style-type: none"> - com.sun.enterprise.security.realm.file.FileRealm - com.sun.enterprise.security.realm.ldap.LDAPRealm 		
Realm additional property	None	Character string, between 1- and 512-characters long	<p>An additional property can be specified.</p> <p>For the properties that can be used, refer to "7.8.1 Properties Used when Creating and Updating Definitions".</p> <p>For all properties, specify the same value as the Interstage Java EE DAS service and the IJServer cluster realm settings.</p>	

Property

Properties that can be referenced/set are as follows (only some properties are shown in the table below).

Properties that can be specified as a "Node Agent additional property"

Item name	Property name
Java VM option for application extraction processing	INSTANCE-SYNC-JVM-OPTIONS

Properties that can be specified as an "JMX connector additional property"

Item name	Property name	Explanation
Client host name	Client-hostname	<ul style="list-style-type: none"> - Host name used to access the Interstage Java EE Node Agent service from the Interstage Java EE DAS service or server instance. <p>If this value is invalid, then it will be falsely recognized that the Interstage Java EE Node Agent service has not started. For this reason, the server instance will fail to start.</p> <p>If the load balancing function is used in RMI-IIOP communication, the IIOP listener network address and port number information are returned to the connection source as a list of server instances. If the IIOP listener definition item network address is '0.0.0.0' (the default), however, this client host name will be returned instead.</p> <p>The default value is the host name of the machine on which Java EE is installed.</p> <ul style="list-style-type: none"> - This is the host name that is used to access the server instance from the EJB Dispatcher. When there are multiple NIC settings, by specifying the host name that is associated with NIC in this property, it is possible to specify the NIC that is used at the time of the connection to the server instance from the EJB Dispatcher.

Properties that can be specified as a "Realm additional property"

For details on the properties that can be specified, refer to "[7.8.12 Security Definition Items](#)".

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	

Contents	Reference destination
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the node-agents

7.2.1 Logger Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Log output directory	[Java EE common directory]/nodeagents/ijna/agent/logs	String	Root path of the Interstage Java EE Node Agent service logs. If a relative path is specified, then the root path will be: [Java EE common directory]/nodeagents/ijna/agent	Yes
Rotation type	Logsize	- logsize - time	Whether the log size (logsize) or log collection time (time) is used for rotation.	Yes
Log size	1	1-512 (MB)	Maximum log size. The log file is rotated when the specified size is reached.	Yes
Log collection time	0	0-23 (Time)	Time at which the rotation is executed. Logs are rotated every day at the specified time.	Yes
Number of generations	1	1-9 (Generation)	Number of generations of the log file for which rotation was performed that will be archived. If the number of archived log files exceeds the specified number, then the oldest generation log file is deleted.	Yes

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	4.22 Java EE Application Logs
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the applications.j2ee-application

7.3 Server Instance Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
server instance name			<p>Server instance name. It can only be specified when the server instance is created.</p> <p>1-28 bytes (half-width alphanumerics, underscores ('_') and hyphen ('-')) can be used. Note the following.</p> <ul style="list-style-type: none"> - 2-byte characters, underscores ('_') and hyphen ('-') cannot be used for the start or end characters. - No distinction is made between upper and lower case, therefore an server instance name that already exists cannot be specified again. For example, INSTANCE001 cannot be created when instance001 has already been defined. - Server instance with the names below cannot be created: <ul style="list-style-type: none"> - domain - ijna - default - server - resources <p>Windows32/64</p> <p>DOS device names cannot be used.</p>	
Application reference			The application associated with a specific target.	
Application reference availability	true	- true - false	<p>Enables/disables the application and target association.</p> <p>The asadmin enable/disable commands can be used to change the active state of the application.</p>	Yes
Application name		String	Name of the associated application. This item cannot be changed.	
Resource reference			The resource associated with a specific target.	
Resource reference availability	true	- true - false	Whether to enable the resource.	No
Resource name		String	The resource name is obtained.	
System property				

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	

Contents	Reference destination
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the Servers

7.4 Cluster Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
IJServer cluster name			<p>IJServer cluster name. It can only be specified when the IJServer cluster is created. 1-28 bytes (half-width alphanumerics and underscores ('_')) can be used. Note the following.</p> <ul style="list-style-type: none"> - 2-byte characters and underscores ('_') cannot be used for the start or end characters. - No distinction is made between upper and lower case, therefore an IJServer cluster name that already exists cannot be specified again. For example, IJSERVER001 cannot be created when ijserver001 has already been defined. - IJServer clusters with the names below cannot be created. <ul style="list-style-type: none"> - domain - ijna - default - server - resources - Windows32/64 <p>DOS device names cannot be used.</p>	
Application reference			The application associated with a specific target.	
Application reference availability	true	- true - false	<p>Enables/disables the application and target association.</p> <p>The asadmin enable/disable commands can be used to change the active state of the application.</p>	Yes
Application name		String	Name of the associated application. This item cannot be changed.	
Resource reference		String	Name of the associated application. This item cannot be changed.	
Resource reference availability	true	- true - false	Enables/disables the resource.	No
Resource name		String	Resource name.	

Item name	Default value	Range	Explanation	Restart required
Heartbeat-port		1024-49151	This is the communication port that is used by the group management service for group event standby.	Yes
Heartbeat-address		String	This is the address that is used by the group management service for group event standby (only multicast is supported).	Yes
heartbeat	false	- true - false	If true is specified, heartbeat is enabled. The start/stop status for each server instance in the IJServer cluster is recognized by the receipt of a regular signal. If false is specified, heartbeat is disabled. All server instances in the IJServer cluster are recognized as having start status.	Yes
System property			Cannot be used in this version.	

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	2.22 Group Management Service
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the Clusters

7.4.1 IIOP Load Balancer Definition Items

Definition Items

Item name	Default value	Range	Explanation	IJServer cluster restart required
Load balancer method	Disable	- disable - ejb-dispatch - gms	Specifies the load balancer method for IIOP communication. - disable - Load balancer will not be used. - ejb-dispatch - Load balancer that uses the EJB dispatch feature will be used. - gms - Load balancer that uses the group management service will be used.	Yes
Object reference failover settings	false	- true - false	Specifies whether failover to another sever instance in the same cluster will be used if the server instance stops when the processing request is sent to the object reference.  Note If this feature is enabled, requests may also be made for server instances excluded as EJB Dispatcher dispatch targets. For this reason, when dispatch	Yes

Item name	Default value	Range	Explanation	IJServer cluster restart required
			operations are executed using the command in the EJB Dispatcher feature, this feature should not be enabled.	
EJB Dispatcher settings				
Request dispatch information log	false	- false - true	Determines whether EJB Dispatcher should log which target the request has been dispatched to.	No
Dispatch target information log	false	- false - true	Determines whether to log information about the EJB Dispatcher dispatch target server instance.	No
Dispatcher target	None	Predefined IJServer cluster name	Name of the IJServer cluster that will be the IIOP communication request dispatch target for the EJB application.  Note The EJB Dispatcher IJServer cluster itself cannot be specified as a dispatch target.	No

Related Information

The table below provides detailed explanation and related content:

Contents	Reference destination
Functionality explanation	2.8.3 Load Balancing Using the EJB Dispatcher Feature
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the Clusters

7.4.2 JNDI Service Definition Items

Definition Items

Item name	Default value	Range	Explanation	IJServer cluster restart required
External naming service URL	None	String	When the naming service on the server instance is referenced, an enquiry will be made to the naming service of the specified external server instance if the JNDI name object reference does not exist. By specifying the server instance which runs on the EJB Dispatcher for this definition, the host name and port number will be separated by a colon (':') in the URL, as shown below. Separate server instances with a comma. When multiple server instances are specified, the connection will be tested starting with the top address, and if the connection fails there will be a failover connection to the next one. Syntax: <hostname>:<port>,...	No

Item name	Default value	Range	Explanation	IJServer cluster restart required
			 Example localhost:37001,localhost:37002	
Object reference cache	false	<ul style="list-style-type: none"> - true - false 	Determines whether the cached object will be reused, when the object references obtained from the linked server URL are cached and then the same JNDI name is referenced next time. This is the same setting as "com.fujitsu.appserv.jndi.remote.object.cache", which is provided in the client.	No

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	JNDI
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the Clusters

7.5 Application-related Definition Items

This section explains the application-related definition items.

7.5.1 Java EE Application Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Name		<ul style="list-style-type: none"> - Alphanumerics or special characters ("_", "!", ";"). - Only alphanumerics or '_' can be specified as the start character. 	This is the Java EE application name.  DOS device names cannot be used.	
Location		String	This is the Java EE application storage destination.	No
Library		String	The Java EE application reference library is specified using the relative path or full path. When multiple libraries are specified, separate each library path using the following character:  ;	No

Item name	Default value	Range	Explanation	Restart required
			<p>Solaris32/64 Linux32/64</p> <p>:</p> <p> Note</p> <p>.....</p> <p>The characters below cannot be specified, otherwise it might not be possible to load classes correctly:</p> <ul style="list-style-type: none"> - Double-byte characters - Space characters (spaces, tabs) at the end of the string <p>.....</p>	
Status		- true - false	Java EE application status.	No
Explanation		String	This is the Java EE application explanation.	No
Web service name		String	This is the # endpoint name of the web service module name for which web service monitoring has been set. If web service monitoring has not been set, this cannot be referenced.	

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Status change (switch between enable and disable) and reference	The following subcommands of asadmin: show-component-status subcommand enable subcommand disable subcommand
Name of definition item in asadmin	Definition Items of the applications.j2ee-application

7.5.2 Web Application Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Name		- Alphanumerics or special characters ('-', '_', ':', ';').	<p>This is the web application name.</p> <p>Windows32/64</p> <p>DOS device names cannot be used.</p>	

Item name	Default value	Range	Explanation	Restart required
		- Only alphanumerics or '_' can be specified as the start character.		
Context root		String	<p>This is the web application context root. In the web application URL, the context root continues immediately after the port number (http://host:port/context-root/...). The context root must start with a slash.</p> <p> Example</p> <p>.....</p> <p>/hello</p> <p>.....</p> <p>Additionally, the following characters cannot be specified:</p> <ul style="list-style-type: none"> - Full-width characters (hiragana, katakana, kanji, alphanumeric characters, and symbols) - Half-width katakana - Symbols except for '+', '-', '.', '_', '\$', '/' (if '.' is used, it must be used together with other characters) - Spaces - Strings of over 64 characters - In Windows, DOS device names 	No
Location		String	This is the server path that is used to extract the web application.	No
Library		String	<p>The web application reference library (JAR) file is specified using the relative path or full path. When multiple libraries are specified, separate each library path using the following character.</p> <p></p> <p>;</p> <p> </p> <p>:</p> <p> Note</p> <p>.....</p> <p>The characters below cannot be specified, otherwise it might not be possible to load classes correctly:</p> <ul style="list-style-type: none"> - Double-byte characters - Space characters at the end of the character string (spaces, tabs) <p>.....</p>	No
Status		- true - false	Web application status.	No
Explanation		String	An explanation for making identification of the web application easier is specified.	No

Item name	Default value	Range	Explanation	Restart required
Web service name		String	This is the endpoint name of the web service for which web service monitoring has been set. If web service monitoring has not been set, this cannot be referenced.	

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Status change (switch between enable and disable) and reference	The following subcommands of asadmin: show-component-status <u>subcommand</u> enable <u>subcommand</u> disable <u>subcommand</u>
Name of definition item in asadmin	Definition Items of the applications.web-module

7.5.3 EJB Module Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Name		<ul style="list-style-type: none"> - Alphanumerics or special characters ('-', '_', ':', ';'). - Only alphanumerics or '_' can be specified as the start character. 	The EJB module name is specified. Windows32/64 DOS device names cannot be used.	
Location		String	The EJB module path in the application server is specified.	No
Library		String	The JEJB module reference library (JAR) file is specified using the relative path or full path. When multiple libraries are specified, separate each library path using the following character. Windows32/64 ; Solaris32/64 Linux32/64 :	No

Item name	Default value	Range	Explanation	Restart required
			 Note The characters below cannot be specified, otherwise it might not be possible to load classes correctly: <ul style="list-style-type: none"> - Double-byte characters - Space characters at the end of the character string (spaces, tabs) 	
Status		<ul style="list-style-type: none"> - true - false 	EJB module status.	No
Explanation		String	An explanation for making identification of the EJB module easier is specified.	No
Web service name		String	This is the endpoint name of the web service for which web service monitoring has been set. If web service monitoring has not been set, this cannot be referenced.	

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Status change (switch between enable and disable) and reference	The following subcommands of asadmin: show-component-status subcommand enable subcommand disable subcommand
Name of definition item in asadmin	Definition Items of the applications.ejb-module

7.5.4 Application Client Module Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Name		<ul style="list-style-type: none"> - Alphanumerics or special characters ("_", "_", ":", ";"). - Only alphanumerics or '_' can be specified as the start character. 	The application client module name is specified.  DOS device names cannot be used.	

Item name	Default value	Range	Explanation	Restart required
Location		String	The path of the application client module in the application server is specified.	No
Explanation		String	An explanation for the application client module is specified.	No

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the applications.applient-module

7.5.5 Connector Module Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Name	".rar file name"	- Alphanumerics or special characters ('-', '_', ':', ';'). - Only alphanumerics or '_' can be specified as the start character.	The connector module name is specified.  DOS device names cannot be used.	
Location		String	The path of the connector module in the application server is specified.	No
Status		- true - false	Connector module status.	No
Explanation		String	An explanation for the connector module is specified.	No

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand

Contents	Reference destination
	list subcommand
Status change (switch between enable and disable) and reference	The following subcommands of asadmin: show-component-status subcommand enable subcommand disable subcommand
Name of definition item in asadmin	Definition Items of the applications.connector-module

7.5.6 Lifecycle Module Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Name		<ul style="list-style-type: none"> - Alphanumerics or special characters ('\\', '_', '\\;', '\\/', '\\;', '\\#'). - Only alphanumerics or '_' can be specified as the start character. 	The lifecycle module definition name is specified.	Yes
Class name		String	The lifecycle module fully-qualified class name is specified.	Yes
Class path		String	The lifecycle module class path is specified.	Yes
Status		<ul style="list-style-type: none"> - true - false 	Lifecycle module status.	Yes
Read-in		101-system MAXINT value	<p>The lifecycle module read-in is specified. This is executed in order of low values first. The value that is specified is 100 or more, and less than the system MAXINT value. If the read-in order is omitted, or is equal to other settings, read-in cannot be guaranteed.</p> <p>Values of less than 100 may be used in the IJServer cluster. It may also be used in future versions. To set a value of less than 100, first check the behavior and verify the compatibility.</p>	Yes
Explanation		String	An optional lifecycle module-related explanation is set.	Yes
Additional property		<p>Property name:</p> <ul style="list-style-type: none"> - Alphanumeric, or special characters ('-', '_', '\\;', '\\/', '\\;', '\\#') - Only alphanumerics or '_' can be specified as the start character - A string between 1 and 512 characters. <p>Property value:</p> <ul style="list-style-type: none"> - A string between 1 and 512 characters 		

Properties

The properties below can be referenced/set:

- Properties which can be specified for "Additional property"
- Any user property can be set. Properties set for "Additional property" can be obtained in the lifecycle module.

For details on how to obtain properties in the lifecycle module, refer to "[3.1.9 Creating the Lifecycle Module](#)".

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	2.24 Lifecycle Module 3.1.9 Creating the Lifecycle Module
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand create-lifecycle-module subcommand delete-lifecycle-module subcommand list-lifecycle-modules subcommand
Status change (switch between enable and disable) and reference	The following subcommands of asadmin: show-component-status subcommand enable subcommand disable subcommand
Name of definition item in asadmin	Definition Items of the applications.lifecycle-module

7.6 Resource-related Definition Items

This section explains the resource-related definition items.

7.6.1 JDBC Connection Pool Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Connection pool name		<ul style="list-style-type: none">- Half-width alphanumerics or special characters (';','_','/',';').- Only alphanumerics or '_' can be specified as the start character.- Between 1 and 255 alphanumeric characters	JDBC Connection Pool name	
Data source class name		String	Data source implementation class	Yes
Resource type		<ul style="list-style-type: none">- javax.sql.DataSource- javax.sql.ConnectionPoolDataSource	Data source interface name. If the resource type is not specified, or	Yes

Item name	Default value	Range	Explanation	Restart required
		- javax.sql.XADataSource	the data source class which is used has not implemented the interface specified for the resource type, the behavior will be the same as when javax.sql.DataSource is specified.	
Explanation		String	JDBC Connection Pool legend	Yes
Additional properties		Property name: <ul style="list-style-type: none"> - Alphanumerics, multibyte characters, or special characters ('', '_', '/', ':', '#') - The first character must be alphanumeric or multibyte. Property value: <ul style="list-style-type: none"> - String 	If the property value type is java.util.Properties, the value is specified in the property in the format "[name=value[,name=value]...] ". Special characters ('', '=') cannot be used for name and value.	Yes (additional property value)

Number of Connections in the Pool

Item name	Default value	Range	Explanation	Restart required
Initial and Minimum pool size	8	0-2147483647 (Number of pools) (Maximum pool size or less)	Minimum number of connections in the pool. This value is also used when the pool is first created, as the number of connections maintained in the pool.	No
Maximum pool size	32	1-2147483647 (Number of pools) (Initial and Minimum pool size or greater, and Change in pool size or greater)	Maximum number of connections maintained in the pool. When the pool number reaches the maximum pool size, if all connections are busy, then connection requests are stored in a queue. When a busy connection is released, the processing to fetch a request held in the queue is executed.	No
Change in pool size	2	1-2147483647 (Number of pools) (Maximum pool size or less)	Number of connections for the batched process that changes the pool size. When the pool size is increased or decreased relative to the maximum and minimum values, the change in pool size is processed as a batch. However, when the pool size is changed, it is increased up to the maximum pool size or decreased up to the minimum pool size. Setting a large value delays connection creation and re-use, but efficiency drops if a small value is set.	No
Idle Timeout	300	0-2147483647 (Seconds)	Maximum number of seconds that a connection can remain in the idle state in the pool. When this time is exceeded, the connection is deleted from the pool. If 0 is specified, the connection cannot be deleted from the pool because of an idle timeout.	Yes(*1)
Maximum wait time	60000	0-2147483647 (Milliseconds)	If the number of connections in the pool reaches the maximum pool size and all the connections are being used, specify the wait time (in	No

Item name	Default value	Range	Explanation	Restart required
			milliseconds) until the connection for the application which requests the connection is timed out. If 0 is specified, connection timeouts are not issued.	

*1 The value set during the first access from the application will be used.

Connection Verification

Item name	Default value	Range	Explanation	Restart required
Connection verification	true	- true - false	Determines whether connection must be verified.  Note When the database to be linked is Symfoware Server, use of Symfoware Server Connection Manager is recommended. When using Connection Manager, disable connection validation. For details on Connection Manager, refer to the Symfoware Server manual.	No
Verification method	rollback	- rollback - table	Method used to verify the connection. - rollback The application server calls the rollback() method of the connection in order to verify the connection. - table The application server issues an SQL statement for the specified database table in order to verify it. The specified table must actually exist, and it must be possible to access the table. When this validation method is used, the SQL statement which is issued will count the number of table lines specified, therefore you should not specify tables with many lines, or tables which are frequently accessed.  Note If the connection which is verified is in the process of executing a container transaction, that connection will not be verified. If resources of V9.3 or earlier are migrated and the auto-commit and meta-data validation methods are contained in the migration target resources, these two validation methods are both supported in the same way. Note that, if the auto-commit and meta-data validation methods are changed to other validation methods, it will not be possible to reset them to the auto-commit and meta-data options in the Java EE Admin Console. In this case, change them to the auto-commit and meta-data options using the command. If the database is Symfoware Server, it may not be possible to detect invalid database connections using the rollback validation method, therefore it is recommended that invalid database connections be detected using Connection Manager. When using Connection Manager, disable connection validation. For details on Connection Manager, refer	No

Item name	Default value	Range	Explanation	Restart required
			<p>to the Symfoware Server manual. If Connection Manager cannot be used, use the table validation method to execute connection validation.</p> <p>If the database is PowerGres Plus, invalid database connections cannot be discovered using the rollback validation method, therefore it is recommended that you use the table validation method to execute connection verification.</p> <p>Depending on the database spec, it may also be possible to discover invalid database connections using the rollback validation method for databases except PowerGres Plus.</p> <p>.....</p>	
Table name		String	<p>If table was selected for "Validation Method", specify the table name here. Execute the following SQL statement for the specified table in order to verify the connection.</p> <p>- SELECT COUNT(*) FROM <Table name></p>	No
In all trouble	false	<ul style="list-style-type: none"> - true - false 	<p>Determines whether a connection error should trigger verification of all connections maintained by the pool.</p> <ul style="list-style-type: none"> - true When an error is detected for one connection, the application server closes all connections maintained in the pool and re-establishes only the number of connections specified by 'Initial and Minimum pool size'. The connections closed by the verification are treated as connections for which connection verification failed. - false A connection is fetched from the connection requests from clients waiting in the pool and verified. Only the connection for which verification failed is discarded. 	No

Transaction Management

Item name	Default value	Range	Explanation	Restart required
Non-transaction connection	false	<ul style="list-style-type: none"> - true - false 	Determines whether should return connections that are not subject to transaction management.	No
Only connections after transaction start participate	false	<ul style="list-style-type: none"> - true - false 	Determines whether only connections that participate in a transaction should be opened after the start of the JTA transaction (must be used with a JDBC driver that has this function enabled).	No
Transaction block	Default block level set by the JDBC driver	<ul style="list-style-type: none"> - read-uncommitted - read-committed - repeatable-read - serializable 	Transaction isolation level to use for connections generated in the pool.	No
Block level	true	<ul style="list-style-type: none"> - true - false 	Determines whether connections returned to an application should be set to the isolation level specified for 'Transaction block'.	No

Detail Attributes

Item name	Default value	Range	Explanation	Restart required
Statement timeout	-1	-1-2147483647	<p>Number of seconds before a request is terminated.</p> <p>The application server executes the <code>setQueryTimeout()</code> method for the <code>Statement</code>, <code>PreparedStatement</code>, or <code>CallableStatement</code> object and sets an execution timeout value.</p> <p>If the application side also explicitly issues the <code>setQueryTimeout()</code> method, the configuration is performed in the following sequence:</p> <ol style="list-style-type: none"> 1. The application server issues the <code>setQueryTimeout()</code> method after the time specified in the statement timeout value. 2. The <code>setQueryTimeout()</code> method from the application is issued. <p>For details on the <code>setQueryTimeout()</code> method, refer to the <code>java.sql.Statement</code> interface Javadoc and the JDBC driver manual.</p> <p>If 0 or less is specified as this value, this attribute is shown as being disabled (the <code>setQueryTimeout()</code> method is not executed).</p>	- No
Pooling (*1)	true	- true - false	Enable the Interstage pooling feature. To use the JDBC driver pooling feature, disable this setting and then disable the Interstage pooling feature.	No
Leak timeout	0	0-2147483647	<p>Specify the optimal maximum time used for the connection (in seconds). If this value is exceeded when the connection is used, it will be assumed that a leak has occurred in that connection.</p> <p>If a connection leak occurs, the stack trace when the connection was opened will be recorded in the sever log, and it will be possible to obtain the number of connections for which leaks have occurred using the JDBC Connection Pool monitor feature.</p> <p>If true was set for the new leak request, the physical connection will be destroyed automatically for connections in which leaks have occurred.</p>	No
Leak reclaim	false	- true - false	If this setting is enabled, the physical connection will be destroyed automatically for connections in which leaks have occurred.	No
Creation retry count	0	0-2147483647	<p>Specify the retry count, for when the creation of a new connection fails.</p> <p>If 0 is specified, there will be no retry.</p>	No
Retry interval	10	1-2147483647	<p>Specify the retry interval (in seconds) for the creation of the connection.</p> <p>This value is enabled when the retry count is greater than 0.</p>	No

*1 Enabling the pooling feature provided in the JDBC driver may cause redundancy because of the Interstage pooling feature. If you want to enable the JDBC driver pooling feature, disable the Interstage pooling feature - this will disable the JDBC Connection Pool definition items below.:

- The initial and minimum pool sizes
- Maximum pool size
- Pool resize quantity
- Idle timeout
- Maximum wait time
- For all trouble

The Symfoware JDBC driver pooling feature is not supported. To use Symfoware, set this setting to true.

Audit Trail

Item name	Default value	Range	Explanation	Restart required
Output of access information to the audit log	false	- true - false	If this setting is enabled, access information is output to the Symfoware audit log.	Yes (*1)

*1 Old information may be output to CLIENT_INF and MODULE_INF, even if the audit log access information output feature is changed from enabled to disabled. In this case, restart the process. Old information may not be output to CLIENT_INF and MODULE_INF, even if the audit log access information output feature is changed from disabled to enabled. In this case, restart the process.

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	2.17 Database Connection/JDBC
Tuning method	Tuning the Database Linkage Environment
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand create-jdbc-connection-pool subcommand delete-jdbc-connection-pool subcommand list-jdbc-connection-pools subcommand
Name of definition item in asadmin	Definition Items of the resources.jdbc-connection-pool

7.6.2 JDBC Resource Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
JNDI name		- Half-width alphanumerics, a half-width space () or special characters (!, (,), -, /, ;, <, >, @, \, ^, _ , {, , }, ~'). - Any of the above characters except for the half-width space can be specified at the start of the name. - Between 1 and 255 alphanumeric characters	JNDI name used to perform lookup of the data source.	
Connection pool name		String	Name of the associated JDBC Connection Pool.	
Explanation		String	JDBC resource legend.	No
Status	true	- true - false	Specifies whether to enable the JDBC resource.	No (*1)

*1 When referencing JDBC resources in the JPA application, this item should be read as "Yes" (restart is required). In the JPA application, the objects of the resources that were obtained at the time of the initial connection are cached and then used continuously. For this reason, even if the status of the resources is changed after the initial connection, the JPA application will run in the same state as the time of the initial connection. To enable the state that was changed after the initial connection, the application must either be redeployed, or the JServer cluster or Interstage Java EE DAS service to which the application has been deployed must be restarted.

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	2.17 Database Connection/JDBC
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand create-jdbc-resource subcommand delete-jdbc-resource subcommand list-jdbc-resources subcommand
Name of definition item in asadmin	Definition Items of the resources.jdbc-resource

7.6.3 JMS Connection Factory Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
JNDI name		<ul style="list-style-type: none"> - Half-width alphanumerics or special characters ('-','_',':','/',';'). - Only alphanumerics or '_' can be specified as the start character. - Between 1 and 255 alphanumeric characters 	JNDI name used to perform lookup of the JMS connection factory.	
Resource type		<ul style="list-style-type: none"> - javax.jms.TopicConnectionFactory - javax.jms.QueueConnectionFactory - javax.jms.ConnectionFactory 	JMS connection factory type.	
Explanation		String	JMS connection factory legend.	Yes
Status	true	<ul style="list-style-type: none"> - true - false 	Determines whether to enable the JMS connection factory.	No

Additional Property

Item name	Default value	Range	Explanation	Restart required
UserName	guest	Property value:String	User name used to connect to the message broker.	Yes

Item name	Default value	Range	Explanation	Restart required
Password	guest	Property value:String	Password used to connect to the message broker.	Yes
ClientId		Property value:String	Client ID of the JMS connection factory used by durable subscribers.	Yes
Optional property name		Property name: <ul style="list-style-type: none"> - Alphanumerics, multibyte characters, or special characters ('-', '_', ':', '/', ';', '#') - The first character must be alphanumeric or multibyte. Property value: <ul style="list-style-type: none"> - String 		Yes

Pool Settings

Item name	Default value	Range	Explanation	Restart required
Initial and Minimum pool size	8	0-2147483647 (Maximum pool size' or less)	Minimum number of connections in the pool. This value is also used when the pool is first created, as the number of connections maintained in the pool.	No
Maximum pool size	32	1-2147483647 (Initial and Minimum pool size' or greater, and 'Change in pool size' or greater)	Maximum number of connections maintained in the pool. When the pool number reaches the maximum pool size, if all connections are busy, then connection requests are stored in a queue. When a busy connection is released, the processing to fetch a request held in the queue is executed.	No
Change in pool size	2	1-2147483647 (Maximum pool size' or less)	If the pool size is enlarged or reduced for maximum pool size/ minimum pool size, the pool size will be changed using batch processing. However, the pool size will be changed so that it is enlarged as far as the maximum pool size, and reduced as far as the minimum pool size. For this value, specify the number of connections in batch processing. If the number set for this value is too high, the creation and reuse of the connection will lag. If the number set for this value is too low, efficiency will drop.	No
Idle Timeout	300	0-2147483647	Maximum number of seconds that a connection can remain in the idle state in the pool. When this time is exceeded, the connection is deleted from the pool. If 0 is specified, the connection is not deleted from the pool because of an idle timeout.	Yes (*1)
Maximum wait time	60000	0-2147483647	Number of milliseconds that the application requesting a connection waits before a connection timeout is issued. If 0 is specified, connection timeouts are not issued.	No
In all trouble	false	- true - false	Determines whether a connection error should trigger verification of all connections maintained by the pool. true	No

Item name	Default value	Range	Explanation	Restart required
			<p>When an error is detected for one connection, the application server closes all connections maintained in the pool and re-establishes only the number of connections specified by 'Initial and Minimum pool size'.</p> <p>The connections closed by the verification are treated as connections for which connection verification failed.</p> <p>false</p> <p>A connection is fetched from the connection requests from clients waiting in the pool and verified.</p> <p>Only the connection for which verification failed is discarded.</p>	
Transaction support		<ul style="list-style-type: none"> - XATransaction - LocalTransaction - NoTransaction 	Transaction level supported by the connection factory.	No
Connection verification	false	<ul style="list-style-type: none"> - true - false 	Determines whether connection must be verified.	No

*1 The value that was set at the time of the first access from the application will be used.

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	JMS Functions that are Provided
Tuning method	
Commands	<p>The following subcommands of asadmin:</p> <p>get subcommand</p> <p>set subcommand</p> <p>list subcommand</p> <p>create-jms-resource subcommand</p> <p>delete-jms-resource subcommand</p> <p>list-jms-resources subcommand</p>
Name of definition item in asadmin	<p>Definition Items of the resources.connector-resource</p> <p>Definition Items of the resources.connector-connection-pool</p>

7.6.4 JMS Send Destination Resource Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
JNDI name		<ul style="list-style-type: none"> - Half-width alphanumerics, a half-width space () or special characters (!,(,),,;,<,>,@,\,^,_,,{} '~). 	JNDI name used to perform lookup of the JMS send destination resources.	

Item name	Default value	Range	Explanation	Restart required
		<ul style="list-style-type: none"> - Any of the above characters except for the half-width space can be specified at the start of the name. - Between 1 and 255 alphanumeric characters. 		
Physical storage destination name		<ul style="list-style-type: none"> - Half-width alphanumerics or special characters ('_', '\$'). - Any of the above characters except for the half-width numerics can be specified at the start of the name. - Between 1 and 255 alphanumeric characters. - When javax.jms.Queue is specified as the resource type in the 'mq.sys.dmq' character string. 	Physical storage destination name of the message broker referenced by the JMS send destination resource.	Yes
Resource type		<ul style="list-style-type: none"> - javax.jms.Topic - javax.jms.Queue 	JMS send destination resources type. (*1)	Yes
Explanation		String	JMS send destination resources legend.	Yes
Status	true	<ul style="list-style-type: none"> - true - false 	Determines whether to enable the JMS send destination resources.	No
Additional property		Property name: <ul style="list-style-type: none"> - Alphanumerics, multibyte characters, or special characters ('-', '_', ':', '/', ';', '#') - The first character must be alphanumeric or multibyte. Property value: <ul style="list-style-type: none"> - String 		Yes

*1 To change a prebuilt JMS send destination resource type, rebuild the target JMS send destination resource.

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	JMS Functions that are Provided
Tuning method	
Commands	The following subcommands of asadmin: <ul style="list-style-type: none"> get subcommand set subcommand list subcommand create-jms-resource subcommand delete-jms-resource subcommand list-jms-resources subcommand
Name of definition item in asadmin	Definition Items of the resources.admin-object-resource

7.6.5 JavaMail Session Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
JNDI name		<ul style="list-style-type: none"> - Half-width alphanumerics, a half-width space () or special characters (!, (,), ', /, ;, <, >, '@, \, ^, _ , {, , } , ~). - Any of the above characters except for the half-width space can be specified at the start of the name. - Between 1 and 255 alphanumeric characters 	The JNDI name is obtained.	
Store protocol	imap	String	<p>The store object communication method that is used is defined. Specify the following values:</p> <ul style="list-style-type: none"> - imap: When IMAP is used - pop3: When POP3 is used 	No
Store protocol class	com.sun.mail.imap.IMAPStore	String	<p>The store communication method class that implements the intended store protocol is specified. Specify the following values:</p> <ul style="list-style-type: none"> - com.sun.mail.imap.IMAPStore: When IMAP is used - com.sun.mail.pop3.POP3Store: When POP3 is used 	No
Transport protocol	smtp	String	<p>The transport communication method is specified. Specify the following values:</p> <ul style="list-style-type: none"> - smtp: When SMTP is used 	No
Transport protocol class	com.sun.mail.smtp.SMTPTransport	String	<p>The transport class communication method is defined. Specify the following values:</p> <ul style="list-style-type: none"> - com.sun.mail.smtp.SMTPTransport: When SMTP is used 	No
Mail host		String	This is the host name of the default mail server. If a protocol-specific host property is not provided, the connection method of the Store object and Transport object uses this value. It must be possible for this name to be resolved as the actual host name.	No
Default user		String	This is the user name that is passed to the mail server when the connection is made. If a protocol-specific username property is not provided, the connection method of the Store object and Transport object uses this value.	No
Default address that is used for reply		String	This is the email address of the default user. It is entered using the "username@hostdomain" format.	No
Debug	false	<ul style="list-style-type: none"> - true - false 	<p>Output of the debug information is specified.</p> <p>The specified value is set in mail.debug of Session Property.</p>	No

Item name	Default value	Range	Explanation	Restart required
Status	true	- true - false	Whether resources are enabled (true) in all IJServer cluster and Interstage Java EE DAS services is specified.	
Explanation		String	An explanation for the component is entered.	No
Additional property		Property name: - Alphanumerics, multibyte characters, or special characters ('-', '_', ':', '/', ';', '#') - The first character must be alphanumeric or multibyte. Property value: - String	The key and value for the added Session Property are specified as a pair. If the definition item and the property that is specified are duplicated, the property is overwritten by this definition. For details on the types of Session Property that can be specified, refer to the JavaMail API documentation.  Note In the value that is used as the key, replace the period (".") part with a hyphen ("-"). Example: For 'mail.debug', specify 'mail-debug'.	

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	4.15.2 Procedure when JavaMail is Used
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand create-javamail-resource subcommand delete-javamail-resource subcommand list-javamail-resources subcommand
Name of definition item in asadmin	Definition Items of the resources.mail-resource

7.6.6 Connector Connection Pool Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Connection pool name		- Half-width alphanumerics or special characters ('-', '_', ':', '/', ';'). - Only alphanumerics or '_' can be specified as the start character. - Between 1 and 255 alphanumeric characters	Connector Connection Pool name	
Resource adapter name		String	Name of the associated resource adapter	Yes

Item name	Default value	Range	Explanation	Restart required
Connection definition name		String	Connection factory interface name	Yes
Explanation		String	Connector Connection Pool legend	Yes
Additional properties		Property name: <ul style="list-style-type: none"> - Alphanumerics, multibyte characters, or special characters ('-', '_', ':', '/', ';', '#') - The first character must be alphanumeric or multibyte. Property value: <ul style="list-style-type: none"> - String 		Yes

Number of Connections in the Pool

Item name	Default value	Range	Explanation	Restart required
Initial and Minimum pool size	8	0-2147483647 (Maximum pool size or less)	Minimum number of connections in the pool. This value is also used when the pool is first created, as the number of connections maintained in the pool.	No
Maximum pool size	32	1-2147483647 (Initial and Minimum pool size or greater, and Change in pool size or greater)	Maximum number of connections maintained in the pool. When the pool number reaches the maximum pool size, if all connections are busy, connection requests are stored in a queue. When a busy connection is released, the processing to fetch a request held in the queue is executed.	No
Change in pool size	2	1-2147483647 (Maximum pool size or less)	Number of connections for the batched process that changes the pool size. When the pool size is increased or decreased relative to the maximum and minimum values, the change in pool size is processed as a batch. However, when the pool size is changed, it is increased up to the maximum pool size or decreased up to the minimum pool size. Setting a large value delays connection creation and re-use, but efficiency drops if a small value is set.	No
Idle Timeout	300	0-2147483647	Maximum number of seconds that a connection can remain in the idle state in the pool. When this time is exceeded, the connection is deleted from the pool. If 0 is specified, the connection cannot be deleted from the pool because of an idle timeout.	Yes(*1)
Maximum wait time	6000	0-2147483647	Number of milliseconds that the application requesting a connection waits before a connection timeout is issued. If 0 is specified, connection timeouts are not issued.	No

Connection Verification

Item name	Default value	Range	Explanation	Restart required
Connection verification		- true - false	Determines whether connection must be verified.	No
In all trouble	false	- true - false	<p>Determines whether a connection error should trigger verification of all connections maintained by the pool.</p> <p>- true</p> <p>When an error is detected for one connection, the application server closes all connections maintained in the pool and re-establishes only the number of connections specified by 'Initial and Minimum pool size'.</p> <p>The connections closed by the verification are treated as connections for which connection verification failed.</p> <p>- false</p> <p>A connection is fetched from the connection requests from clients waiting in the pool and verified.</p> <p>Only the connection for which verification failed is discarded.</p>	No

Transaction Management

Item name	Default value	Range	Explanation	Restart required
Transaction support		- XATransaction - LocalTransaction - NoTransaction	Transaction support level coded in ra.xml is overwritten by a level lower than the specified one.	No

Connector Security

Item name	Default value	Range	Explanation	Restart required
Security map name		- Half-width alphanumerics or special characters ('-', '_', ':', '/', ';'). - Only alphanumerics or '_' can be specified as the start character. - Between 1 and 512 alphanumeric characters	Name used to reference a specific security map	
Principal (Main)		String	Application caller user name mapped to the appropriate backend principal	Yes
User group		String	Application caller group name mapped to the appropriate backend principal	Yes
User name		String	Backend principal user name mapped to the appropriate EIS user name.	Yes
Password		String	Backend principal password mapped to the appropriate EIS user password.	Yes

*1 The value that was set at the time of the first access from the application will be used.

Contents	Reference destination
	get subcommand set subcommand list subcommand create-connector-resource subcommand delete-connector-resource subcommand list-connector-resources subcommand
Name of definition item in asadmin	Definition Items of the resources.connector-resource

7.6.8 Managed Object Resource Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
JNDI name		<ul style="list-style-type: none"> - Half-width alphanumerics, a half-width space () or special characters (!, (,), ', : ; / ; ; < ; > ; @ ; \ ; ^ ; _ ; ' ; { ; } ; ~). - Any of the above characters except for the half-width space can be specified at the start of the name. - Between 1 and 255 alphanumeric characters 	JNDI name used to perform lookup of the managed object.	
Resource type		String	Managed object interface name.	Yes
Resource adapter name		String	Name of the associated resource adapter.	Yes
Explanation		String	Managed object resource legend.	Yes
Status	true	<ul style="list-style-type: none"> - true - false 	Specifies whether to enable the managed object resource.	No
Additional properties		Property name: <ul style="list-style-type: none"> - Alphanumerics, multibyte characters, or special characters (-, _, ', /, ', #) - The first character must be alphanumeric or multibyte. Property value: <ul style="list-style-type: none"> - String 		Yes

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	2.20 Functionality Provided in the Connector
Tuning method	
Commands	The following subcommands of asadmin: get subcommand

Contents	Reference destination
	set subcommand list subcommand create-admin-object subcommand delete-admin-object subcommand list-admin-objects subcommand
Name of definition item in asadmin	Definition Items of the resources.admin-object-resource

7.6.9 Resource Adapter Definition Information Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Resource adapter name		<ul style="list-style-type: none"> - Half-width alphanumerics or special characters (\, -, _ , / , ; , #). - Only alphanumerics or '_' can be specified as the start character. 	Name of the associated resource adapter	
Thread pool ID		String	Thread pool ID used for processing task requests from the resource adapter.	Yes

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	Functionality Provided in the Connector
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand create-resource-adapter-config subcommand delete-resource-adapter-config subcommand list-resource-adapter-configs subcommand
Name of definition item in asadmin	Definition Items of the resources.resource-adapter-config

7.6.10 Custom Resource Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
JNDI name		<ul style="list-style-type: none"> - Half-width alphanumerics, a half-width space () or special characters (!, (,), *, +, /, ;, <, >, @, \, ^, _ , {, , }, ~). 	Unique name in the JNDI namespace	

Item name	Default value	Range	Explanation	Restart required
		<ul style="list-style-type: none"> - Any of the above characters except for the half-width space can be specified at the start of the name. - Between 1 and 255 alphanumeric characters 		
Resource type		String	Object type, using the fully qualified format	No
Factory class		String	Resource factory class, using the fully qualified format javax.naming.spi.ObjectFactory must be implemented.	No
Explanation		String	Custom resource legend.	No
Status	true	<ul style="list-style-type: none"> - true - false 	Specifies whether to enable the custom resource.	No
Additional properties		String	Specifies a unique property which can be used in the Factory Class.	Yes

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	
Commands	<p>The following subcommands of asadmin:</p> <ul style="list-style-type: none"> get subcommand set subcommand list subcommand create-custom-resource subcommand delete-custom-resource subcommand list-custom-resources subcommand
Name of definition item in asadmin	Definition items of the resources.custom-resource

7.6.11 External Resource Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
JNDI name		<ul style="list-style-type: none"> - Half-width alphanumerics, a half-width space () or special characters (!, (,), -, !, /, ;, <, >, !, @, \, ^, _ , \$, {, , } , ~). - Any of the above characters except for the half-width space can be specified at the start of the name. 	Name unique in the JNDI namespace	

Item name	Default value	Range	Explanation	Restart required
		- Between 1 and 255 alphanumeric characters		
Resource type		String	Object type, using the fully qualified format	No
Factory class		String	Resource factory class, using the fully qualified format javax.naming.spi.InitialContextFactory must be implemented.	No
JNDI search		String	JNDI name used for external repository search	No
Explanation		String	External resource legend.	No
Status	true	- true - false	Specifies whether to enable the external resource	No
Additional properties		String	Specifies a unique property which can be used in the Factory Class.	Yes

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand create-jndi-resource subcommand delete-jndi-resource subcommand list-jndi-resources subcommand
Name of definition item in asadmin	Definition Items of the resources.external-jndi-resource

7.7 Message Broker Option Properties

The Interstage JMS message broker option properties are explained below.

To specify an option property when the message broker is running, use the imqbrokerd command.

To change the broker settings while the message broker is running, use the imqcmd command.

7.7.1 Connection Service Properties

Property	Structure information	Value that is set	Default value	Settings in the command (Value range)	
				imqbrokerd	imqcmd
imq.<serviceName>.max_threads (*1)(*2)	The maximum number of threads retained in the connection service thread pool that was specified is specified. (*3)	Integer	jms: 1000 admin: 10	Yes (2-2147483647)	With conditions (*4) (2-2147483647)
imq.<serviceName>.min_threads (*1)(*2)	The minimum number of threads retained in the connection service thread pool that was specified is specified.	Integer	jms: 10 admin: 4	Yes (0-2147483647)	With conditions (*5) (0-2147483647)
imq.<serviceName>.threadpool_model (*1)	The thread pool management thread model is specified: - dedicated Two dedicated threads, for receiving and sending, are used for each connection. - shared The connection is processed by a shared thread when the message is sent/received.	- dedicated - shared	dedicated	Yes	No
imq.<serviceName>.tcp.port (*1)(*6)	The port number of the connection service that was specified is specified.	Integer	0 (*7)	Yes (0-65535)	With conditions (*8) (1-65535)

Yes: Can be set

With conditions: Can be set using another name

No: Cannot be set

*1 The following values that indicate the connection service in serviceName can be specified:

For details on connection service, refer to "2.19.4 Connection Service".

- admin
- jms

*2 Set max_threads to a value greater than min_threads value.

*3 This must be set after performing an estimate using the following formula:

- **When threadpool_model is dedicated**

If serviceName is jms:

$$((1) + (2) + (3) + (4) + (5)) * 2 \text{ or more}$$

(1) Number of IJServer cluster server instances which use JMS

When there are multiple IJServer clusters, this will be the total number for each IJServer cluster separately.

(2) Number of Message-driven Bean applications deployed to the IJServer cluster * Number of server instances

When there are multiple IJServer clusters, this will be the total number for each IJServer cluster separately.

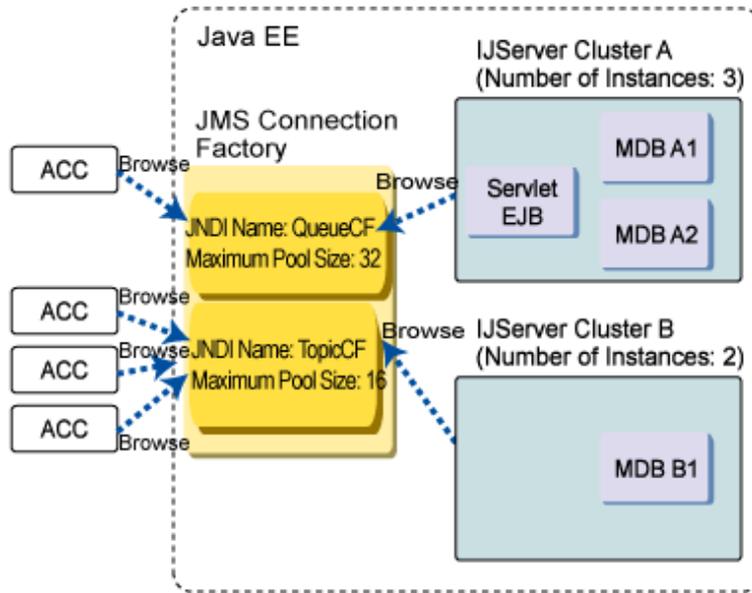
(3) Number of IJServer cluster server instances which browse the JMS Connection Factories * Maximum pool size set for the JMS Connection Factories

When there are multiple JMS Connection Factories, this will be the total number which is calculated for each JMS Connection Factory separately.

(4) Number of JMS client applications which browse the JMS Connection Factories * Maximum pool size set for the JMS Connection Factories

When there are multiple JMS Connection Factories, this will be the total number which is calculated for each JMS Connection Factory separately.

(5) Number of JMS client applications which browse the JMS Connection Factories



ACC stands for Application Client Container,
MDB stands for Message-driven Bean application.

For the above environments, an estimate is shown below.

Note that, in the case of a standalone JavaSE application, "ACC" in the above figure should be read as "JavaSE standalone application" before you perform the estimate.

(1)	[IJServer cluster A] Number of server instances: 3 [IJServer cluster B] Number of server instances: 2 Accordingly, $3 + 2 = 5$
(2)	[IJServer cluster A] Number of Message-driven Bean applications: 2 [IJServer cluster A] Number of server instances: 3 [IJServer cluster B] Number of Message-driven Bean applications: 1 [IJServer cluster B] Number of server instances: 2 Accordingly, $(2 * 3) + (1 * 2) = 8$
(3)	[JMS Connection Factory QueueCF] Maximum pool size: 32 [JMS Connection Factory QueueCF] Number of server instances of IJServer cluster A that reference JMS connection factory QueueCF: 3 [JMS Connection Factory TopicCF] Maximum pool size: 16 [JMS Connection Factory TopicCF] Number of server instances of IJServer cluster B that reference JMS connection factory TopicCF: 2

	Accordingly, $(3 * 32) + (2 * 16) = 128$
(4)	<p>[JMS Connection Factory QueueCF] Maximum pool size: 32</p> <p>[JMS Connection Factory QueueCF] Number of application client containers that reference JMS connection factory QueueCF: 1</p> <p>[JMS Connection Factory TopicCF] Maximum pool size: 16</p> <p>[JMS Connection Factory TopicCF] Number of application client containers that reference JMS connection factory TopicCF: 3</p> <p>Accordingly, $(1 * 32) + (3 * 16) = 80$</p>
(5)	<p>[JMS Connection Factory QueueCF] Number of application client containers that reference JMS connection factory QueueCF: 1</p> <p>[JMS Connection Factory TopicCF] Number of application client containers that reference JMS connection factory TopicCF: 3</p> <p>Accordingly, $1 + 3 = 4$</p>

According to the above table, the value set for `imq.jms.max_threads` will be as follows:

$$((1) + (2) + (3) + (4) + (5)) * 2 = (5 + 8 + 128 + 80 + 4) * 2 = 450 \text{ or greater}$$

If `serviceName` is `admin`:

$$((1) + (2)) * 2 \text{ or greater}$$

(1) Number of server instances that reference the message broker

(2) Execution concurrency for the `imqcmd` command

- If `threadpool_model` is shared

Set the maximum number of threads to which use will be restricted on the message broker for the `admin` and `jms` services.

- *4 If this is set using `imqcmd`, specify `"-o maxThreads=Value that is set"`.
- *5 If this is set using `imqcmd`, specify `"-o minThreads=Value that is set"`.
- *6 Set a different number for the ports used for the `admin` and `jms` services.
- *7 A port that can be used when the message broker is running is used.
- *8 If this is set using `imqcmd`, specify `"-o port=Value that is set"`.

7.7.2 Routing Service Properties

Property	Structure information	Value that is set	Default value	Settings in the command (Value range)	
				imqbrokerd	imqcmd
<code>imq.destination.DMQ.truncateBody</code>	Whether to delete the message body before it is saved in the dead messages queue is specified. If true is specified, only the message header and properties are saved.	- true - false	false	Yes	Yes
<code>imq.message.expiration.interval</code>	The detection interval for expired messages (Unit: Seconds) is specified. It is recommended that the initial value that was set (60 seconds) is not changed. If a value that is less than the initial value is set,	Integer	60	Yes (1-2147483647)	No

Property	Structure information	Value that is set	Default value	Settings in the command (Value range)	
				imqbrokerd	imqcmd
	the message broker process load may increase and performance may deteriorate.				
imq.message.max_size	The maximum size of a single message (Unit: Bytes, kilobytes, or megabytes (*1)) is specified. If "-1" is specified, the maximum size of a single message is unlimited.	Integer	70m	Yes (-1, 1-2147483647)	Yes (-1-2147483647)
imq.system.max_count	The maximum number of messages retained by the message broker is specified. If the value that was set is exceeded, the message is rejected and not accumulated in the message broker. If "-1" is set for this value, it indicates that the value is unlimited.	Integer	-1	Yes (-1, 1-2147483647)	Yes (-1-2147483647)
imq.system.max_size	The maximum message size that is allowed (Unit: Bytes, kilobytes, or megabytes (*1)) is specified. If the value that was set is exceeded, the message is rejected and not accumulated in the message broker. If "-1" is specified, the maximum size that is allowed is unlimited.	Integer	-1	Yes (-1, 1-2147483647)	Yes (-1-2147483647)
imq.transaction.producer.maxNumMessages	The maximum number of messages that the producer can process in a single transaction.	Integer	1000	Yes (1-2147483647)	No
imq.transaction.consumer.maxNumMessages	The maximum number of messages that the consumer can process in a single transaction.	Integer	100	Yes (1-2147483647)	No

Yes: Can be set

No: Cannot be set

*1 The unit is specified by adding the following half-width English after the numerical value (Default: Bytes).

- When the unit is bytes: b (Example: 100b)
- When the unit is kilobytes (1024 bytes): k (Example: 100k)
- When the unit is megabytes (1024x1024 bytes): m (Example: 100m)

7.7.3 Physical Storage Destination Automatic Generation Properties

This property is reflected as the value that is set for the physical storage destination when the physical storage destination is created automatically.

If you want to change the settings of the physical storage destination that has already been generated, specify "Physical storage destination generation or update properties" in the imqcmd update dst command to update it.

Property	Structure information	Value that is set	Default value	Settings in the command (Value range)	
				imqbrokerd	imqcmd
Imq.autocreate.destination.maxBytesPerMsg	<p>The maximum size of a single message that is allowed in the physical storage destination (Unit: Bytes, kilobytes, or megabytes (*1)) is specified. This property is only enabled when the limitBehavior property is set in REJECT_NEWEST.</p> <p>If a message exceeds the value that was specified, an exception is notified to the producer (For messages with no persistence, an exception is not notified).</p> <p>If "-1" is specified, the maximum size of a single message that is allowed is unlimited.</p>	Integer	10m	Yes (-1, 1-2147483647)	No
Imq.autocreate.destination.maxTotalMsgBytes	<p>The total maximum size of messages that is allowed in the physical storage destination (Unit: Bytes, kilobytes, or megabytes (*1)) is specified.</p> <p>If "-1" is specified, the total maximum size of messages that is allowed is unlimited.</p>	Integer	10240m	Yes (-1, 1-2147483647)	No
Imq.autocreate.destination.limitBehavior	<p>The response method of the message broker when the maxTotalMsgBytes or maxBytesPerMsg or maxNumMsgs limit was reached is specified.</p> <p>One of the following is selected.</p> <ul style="list-style-type: none"> - FLOW_CONTROL Message storing is made to wait until messages can accumulate in the physical storage destination. (*2) - REMOVE_OLDEST The oldest message is destroyed. - REMOVE_LOW_PRIORITY Messages with the lowest priority in accordance 	<ul style="list-style-type: none"> - FLOW_CONTROL - REMOVE_OLDEST - REMOVE_LOW_PRIORITY - REJECT_NEWEST 	REJECT_NEWEST	Yes	No

Property	Structure information	Value that is set	Default value	Settings in the command (Value range)	
				imqbrokerd	imqcmd
	<p>with the expiry date are destroyed. This is not notified to the producer.</p> <p>- REJECT_NEWEST New messages are rejected. An exception is only notified to the producer for persistence messages.</p>				
imq.autocreate.destination.maxNumMsgs	<p>The maximum number of accumulated messages that are allowed in the physical storage destination is specified.</p> <p>If "-1" is specified, the maximum number of accumulated messages that are allowed is unlimited.</p>	Integer	100000	Yes (-1, 1-2147483647)	No
imq.autocreate.destination.maxNumProducers	<p>The maximum number of producers that can connect to the physical storage destination is specified.</p> <p>If "-1" is specified, the maximum number of producers that can connect is unlimited.</p>	Integer	100	Yes (-1, 1-2147483647)	No
imq.autocreate.destination.useDMQ	<p>When a message is destroyed because the physical storage destination is limited, whether to save dead messages in the queue or destroy the messages is specified.</p> <p>If false is specified, the message is destroyed.</p>	- true - false	true	Yes	No
imq.autocreate.queue	<p>Specify whether to allow the automatic generation of the physical storage destination for which the physical storage destination type is "Queue".</p> <p>If false is specified, the automatic generation of the physical storage destination for which the physical storage destination type is "Queue" is not allowed.</p>	- true - false	true	Yes	Yes
imq.autocreate.queue.consumerFlowLimit	<p>This setting is only enabled for physical storage destinations for which the</p>	Integer	1000	Yes (-1, 1-2147483647)	No

Property	Structure information	Value that is set	Default value	Settings in the command (Value range)	
				imqbrokerd	imqcmd
	<p>physical storage destination type is "Queue".</p> <p>The number of messages that can be delivered to the message consumer at the point when the connection to the message broker was made is specified.</p> <p>If "-1" is specified, the number of messages that can be delivered to the message consumer is unlimited.</p> <p>To perform operations when a message expiry date has been set, it is recommended that a low value is set for this value.</p> <p>For details, refer to "Preparation for sending/receiving JMS messages".</p>				
imq.autocreate.queue.maxNumActiveConsumers	<p>This setting is only enabled for physical storage destinations for which the physical storage destination type is "Queue".</p> <p>The maximum number of consumers that can receive messages from the physical storage destination is specified.</p> <p>If "-1" is specified, the maximum number of consumers that can receive messages from the physical storage destination is unlimited.</p>	Integer	-1	Yes (-1, 1-2147483647)	Yes (-1, 1-2147483647)
imq.autocreate.queue.maxNumBackupConsumers	<p>This setting is only enabled for physical storage destinations for which the physical storage destination type is "Queue".</p> <p>The maximum number of consumers that can queue to receive messages from the physical storage destination is specified.</p> <p>If "-1" is specified, the maximum number of consumers that can queue to receive messages from the</p>	Integer	0	Yes (-1-2147483647)	Yes (-1-2147483647)

Property	Structure information	Value that is set	Default value	Settings in the command (Value range)	
				imqbrokerd	imqcmd
	physical storage destination is unlimited.				
imq.autocreate.topic	Specify whether to allow the automatic creation of the physical storage destination for which the physical storage destination type is "Topic". If false is specified, the automatic creation of the physical storage destination for which the physical storage destination type is "Topic" is not allowed.	- true - false	true	Yes	Yes
imq.autocreate.topic.consumerFlowLimit	This setting is only enabled for physical storage destinations for which the physical storage destination type is "Topic". The number of messages that can be delivered to the message consumer at the point when the connection to the message broker was made is specified. If "-1" is specified, the number of messages that can be delivered to the message consumer is unlimited. To perform operations when a message expiry date has been set, it is recommended that a low value is set for this value. For details, refer to "Preparation for sending/receiving JMS messages".	Integer	1000	Yes (-1, 1-2147483647)	No

Yes: Can be set

No: Cannot be set

*1 The unit is specified by adding the following half-width English after the numerical value (Default: Bytes).

- When the unit is bytes: b (Example: 100b)
- When the unit is kilobytes (1024 bytes): k (Example: 100k)
- When the unit is megabytes (1024x1024 bytes): m (Example: 100m)

*2 Processing is not returned to the producer until the standby status is cleared.

7.7.4 Persistence Service Properties

Property	Structure information	Value that is set	Default value	Settings in the command (Value range)	
				imqbrokerd	imqcmd
imq.persist.file.sync.enabled	<p>Whether to make the memory status synchronous with the persistence information file is specified.</p> <p>If true is specified, the memory status is made synchronous with the persistence information file.</p>	<ul style="list-style-type: none"> - true - false 	false	Yes	No

Yes: Can be set

No: Cannot be set

7.7.5 Security Properties

Property	Structure information	Value that is set	Default value	Settings in the command (Value range)	
				imqbrokerd	imqcmd
imq.accesscontrol.enabled	<p>Whether to use access control for the connection service is specified.</p> <p>If false is specified, access control is not performed.</p>	<ul style="list-style-type: none"> - true - false 	true	Yes	No

Yes: Can be set

No: Cannot be set

7.7.6 Log Function Properties

Property	Structure information	Value that is set	Default value	Settings in the command (Value range)	
				imqbrokerd	imqcmd
imq.destination.logDeadMsgs	<p>Whether to write dead message information to a log is specified.</p> <p>If true is specified, the following events are written to a log.</p> <ul style="list-style-type: none"> - The physical storage destination has reached the maximum size or maximum number of messages and is full. - The message broker has destroyed a message for reasons other than admin command or delivered message. - The message broker has saved messages to the dead messages queue. 	<ul style="list-style-type: none"> - true - false 	false	Yes	Yes
imq.log.file.rollover bytes	The log size (Unit: Bytes) at which the log file rotates is specified.	Integer	268435456(256MB)	Yes	Yes

Property	Structure information	Value that is set	Default value	Settings in the command (Value range)	
				imqbrokerd	imqcmd
	If "-1" is specified, it indicates that rotation based on the log size is not performed.			(-1, 1-92233720368 54775807)	(-1-21474836 47)
imq.log.file.rolloversecs	The validity period (Unit: Seconds) of the log file before it rotates is specified. If "-1" is specified, it indicates that rotation based on the validity period is not performed.	Integer	604800 (1 week)	Yes (-1, 1-92233720368 54775807)	Yes (-1-21474836 47)
Imq.log.timezone	The time zone for the time stamp of the log is specified. The value that can be used is the same as the value that is used in the java.util.TimeZone.getTimeZone method.  Example "Asia/Tokyo", "America/Los_Angeles", "Europe/London", "GMT-9", "GMT"	Character string	Corresponding regional time zone	Yes	No
imq.log.access.level	The access log level. - NORMAL The access log is output. - NONE The access log is not output.	- NORMAL - NONE	NORMAL	Yes	No
imq.log.access.rolloverbytes	The log size (Unit: Bytes) at which the access log file rotates is specified. If "-1" is specified, it indicates that rotation based on the log size is not performed.	Integer	268435456(256MB)	Yes (-1, 1-92233720368 54775807)	No
imq.log.access.rolloversecs	The validity period (Unit: Seconds) of the access log file before it rotates is specified. If "-1" is specified, it indicates that rotation based on the validity period is not performed.	Integer	604800(1 week)	Yes (-1, 1-92233720368 54775807)	No

Yes: Can be set

No: Cannot be set

7.7.7 Physical Storage Destination Generation or Update Properties

Property	Structure information	Value that is set	Default value	Settings in the command (Value range)	
				imqbrokerd	imqcmd
consumerFlowLimit	<p>If messages are accumulated at the physical storage destination, the number of messages set for this property is broadcast, as an integer, to consumers who perform reception processing until there are no more accumulated messages.</p> <p>If "-1" is specified, the number of messages that can be delivered to the consumer is unlimited.</p> <p>To perform operations when a message expiry date has been set, it is recommended that a low value is set for this value.</p> <p>For details, refer to "Preparation for sending/receiving JMS messages".</p>	Integer	1000	No	Yes (-1-2147483647)
maxBytesPerMsg	<p>The maximum size of a single message that is allowed in the physical storage destination (Unit: Bytes, kilobytes, or megabytes (*1)) is specified. This property is only enabled when the limitBehavior property is set in REJECT_NEWEST.</p> <p>If a message exceeds the value that was specified, an exception is notified to the producer (For messages with no persistence, an exception is not notified).</p> <p>If "-1" is specified, the maximum size of a single message that is allowed is unlimited.</p>	Integer	-1	No	Yes (-1-2147483647)
maxTotalMsgBytes	<p>The total maximum size of messages that is allowed in the physical storage destination (Unit: Bytes, kilobytes, or megabytes (*1)) is specified.</p> <p>If "-1" is specified, the total maximum size of messages that is allowed is unlimited.</p>	Integer	-1	No	Yes (-1-2147483647)
limitBehavior	<p>The response method of the message broker when the maxTotalMsgBytes or maxBytesPerMsg or maxNumMsgs limit was reached is specified.</p> <p>One of the following is selected.</p> <ul style="list-style-type: none"> - FLOW_CONTROL Message storing is made to wait until messages can accumulate in the physical storage destination. (*2) 	<ul style="list-style-type: none"> - FLOW_CONTROL - REMOVE_OLDEST - REMOVE_LOW_PRIORITY 	REJECT_NEWEST	No	Yes

Property	Structure information	Value that is set	Default value	Settings in the command (Value range)	
				imqbrokerd	imqcmd
	<ul style="list-style-type: none"> - REMOVE_OLDEST The oldest message is destroyed. - REMOVE_LOW_PRIORITY Messages with the lowest priority in accordance with the expiry date are destroyed. This is not notified to the producer. - REJECT_NEWEST New messages are rejected. An exception is only notified to the producer for persistence messages. 	<ul style="list-style-type: none"> - REJECT_NEWEST 			
maxNumActiveConsumers	<p>This setting is only enabled for physical storage destinations for which the physical storage destination type is "Queue".</p> <p>The maximum number of consumers that can receive messages from the physical storage destination is specified.</p> <p>If "-1" is specified, the maximum number of consumers that can receive messages from the physical storage destination is unlimited.</p>	Integer	-1	No	Yes (-1, 1-2147483647)
maxNumBackupConsumers	<p>This setting is only enabled for physical storage destinations for which the physical storage destination type is "Queue".</p> <p>The maximum number of consumers that can queue to receive messages from the physical storage destination is specified.</p> <p>If "-1" is specified, the maximum number of consumers that can queue to receive messages from the physical storage destination is unlimited.</p>	Integer	0	No	Yes (-1-2147483647)
maxNumMsgs	<p>The maximum number of accumulated messages that are allowed in the physical storage destination is specified.</p> <p>If "-1" is specified, the maximum number of accumulated messages that are allowed is unlimited.</p>	Integer	-1	No	Yes (-1-2147483647)
maxNumProducers	<p>The maximum number of producers that can connect to the physical storage destination is specified.</p> <p>If "-1" is specified, the maximum number of producers that can connect is unlimited.</p>	Integer	100	No	Yes (-1, 1-2147483647)

Property	Structure information	Value that is set	Default value	Settings in the command (Value range)	
				imqbrokerd	imqcmd
useDMQ	When a message is destroyed because the physical storage destination is limited, whether to save dead messages in the queue or destroy the messages is specified. If false is specified, the message is destroyed.	- true - false	true	No	Yes

Yes: Can be set

No: Cannot be set

*1 The unit is specified by adding the following half-width English after the numerical value (Default: Bytes).

- When the unit is bytes: b (Example: 100b)
- When the unit is kilobytes (1024 bytes): k (Example: 100k)
- When the unit is megabytes (1024x1024 bytes): m (Example: 100m)

*2 Processing is not returned to the producer until the standby status is cleared.

7.8 Operating Environment-related Definition Items

This section explains the operating environment-related definition items.

7.8.1 Properties Used when Creating and Updating Definitions

When updating a definition, defined properties and system properties can be used as variables in defining the value.

As shown below, the property name is placed in {}, and these properties can be specified by adding '\$' at the beginning.

```
${com.sun.aas.javaRoot}
```

Defined properties

In the Java EE runtime environment, the following properties are already defined and can be used when a definition is updated.

These items are for reference only, the user cannot change their values.

Property name	Description
com.sun.aas.installRoot	Installation directory of the Java EE runtime environment. The default value is as follows: Windows32/64 C:\Interstage\F3FMisjee Solaris32/64 Linux32/64 /opt/FJSVisjee
com.sun.aas.javaRoot	JDK/JRE installation directory. The default value is as follows: Windows32/64 C:\Interstage\JDK6

Property name	Description
	<p>Solaris32/64 Linux32/64</p> <p>/opt/FJSVawjbc/jdk6</p>
com.sun.aas.instanceRoot	<p>Server instance root directory.</p> <p>The default value is as follows:</p> <p>Server Instance</p> <p>Windows32/64</p> <p>[Java EE common directory]\nodeagents\ijna\[server instance name]</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/nodeagents/ijna/[server instance name]</p> <p>Interstage Java EE DAS Service</p> <p>Windows32/64</p> <p>[Java EE common directory]\domains\interstage</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/domains/interstage</p> <p>Interstage Java EE Node Agent Service</p> <p>Windows32/64</p> <p>[Java EE common directory]\nodeagents\ijna\agent</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE common directory]/nodeagents/ijna/agent</p>
com.sun.aas.derbyRoot	<p>Java DB root directory.</p> <p>The default value is as follows:</p> <p>Windows32/64</p> <p>C:\Interstage\F3FMisjee\javadb</p> <p>Solaris32/64 Linux32/64</p> <p>/opt/FJSVisjee/javadb</p>
com.sun.aas.hostName	Host name of the machine that the Java EE runtime environment is run on.
file.separator	<p>This is the file path separator.</p> <p>"/" is used in all platforms.</p>
path.separator	<p>This is the environment variable separator.</p> <p>Windows32/64</p> <p> ";" is used.</p> <p>Solaris32/64 Linux32/64</p> <p> ";" is used.</p>



Example

Use as follows:

```
> asadmin set IJServer001.java-config.java-home=${com.sun.aas.javaRoot}
> asadmin set IJServer001.log-service.log-directory=${com.sun.aas.instanceRoot}/logs
```

System property

System properties can be defined for each of the following:

- Domains
- Settings
- IJServer clusters
- Server instances

The instances to which the properties are valid and the values to set are displayed below.

Target	Valid for instances	Value to set
Domain	All server instances, including the Interstage Java EE DAS service	Literal "domain".
Setting	Server instances and Interstage Java EE DAS services under all IJServer clusters that reference the specified setting	The setting name. To specify an Interstage Java EE DAS service setting, specify "server-config".
IJServer cluster	All server instances under the specified IJServer cluster	The IJServer cluster name.
Server instance	The specified server instance	The server instance name. To specify an Interstage Java EE DAS service server instance, specify "server".

If the same system property is defined more than once, then the definition with the highest priority takes effect. The priority sequence is: domain < setting < IJServer cluster < server instance.

Make sure that, for the properties below, the value that takes effect in each server instance is unique.

These values are defined as system properties for the settings referenced by the IJServer cluster or as server instance system properties.

When the server instance is created and the port number defined in the system property for the settings referenced by the IJServer cluster is used by another server instance, a port number is automatically assigned from the values defined in the settings and the system property is created under the server instance definition.

If the instance using the port number defined in the settings system property does not exist elsewhere, the server instance system property will not be created and the value defined for the settings system property will be used. In this case, the reference of the server instance system property by the asadmin command get subcommand will fail.

Use the asadmin command list-system-properties subcommand or the Interstage Java EE Admin Console to check the system property value used by the server instance.

Property name	Default value	Range	Description
HTTP_LISTENER_PORT	28090	5001-65535	Port number for the HTTP listener. For details, refer to " 7.8.3 HTTP Service Definition Items ".
IIOP_LISTENER_PORT	23700	1-65535	Port number for IIOP listener For details, refer to " 7.8.4 IIOP Service Definition Items ".
IIOP_SSL_LISTENER_PORT	23820	1-65535	Port number for IIOP listener for SSL communication.

Property name	Default value	Range	Description
			For details, refer to " 7.8.4 IIOP Service Definition Items ".
IIOP_SSL_MUTUALAUTH_PORT	23920	1-65535	Port number for IIOP listener for SSL communication client certification. For details, refer to " 7.8.4 IIOP Service Definition Items ".
JMX_SYSTEM_CONNECTOR_PORT	28686	1-65535	This is the RMI registry connection port number that is used by the JMX connector. For details, refer to " 7.8.5 Managed Service Definition Items ". Note) The Interstage Java EE Node Agent service must be restarted after the settings are updated.

Example

Use as follows:

```
> asadmin set IJServer001.iiop-service.iiop-listener.orb-listener-1.port=${IIOP_LISTENER_PORT}
>asadmin set IJServer001-config.system-property.IIOP_LISTENER_PORT=33700
>asadmin set Instance002.system-property.IIOP_LISTENER_PORT=23701
```

Additionally, set a value for the following item per IJServer cluster. System properties cannot be set per server instance.

Provider name	Explanation
JMS_PROVIDER_PORT	This is the JMS provider port number. For details, refer to " JMS Service Definition Items ".

Example

Use as follows:

```
> asadmin set IJServer001-config.jms-service.jms-host.default_JMS_host.port=${JMS_PROVIDER_PORT}
> asadmin set IJServer001-config.system-property.JMS_PROVIDER_PORT=37676
```

Refer to the following also regarding the specification of system properties.

- create-system-properties subcommand
- delete-system-property subcommand
- list-system-properties subcommand

7.8.2 Setting Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Setting name			Setting name. It can only be specified when the setting is created.	

Item name	Default value	Range	Explanation	Restart required
			<p>1-35 bytes (half-width alphanumerics, underscores ('_') and hyphen ('-')) can be used. Note the following.</p> <ul style="list-style-type: none"> - 2-byte characters, underscores ('_') and hyphen ('-') cannot be used for the start or end characters. - No distinction is made between upper and lower case, therefore an server instance name that already exists cannot be specified again. For example, CONFIG001 cannot be created when config001 has already been defined. - Settings with the names below cannot be created. <ul style="list-style-type: none"> - domain - ijna - default - server - resources - Windows32/64 <p>DOS device names cannot be used.</p>	

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	
Commands	<p>The following subcommands of asadmin:</p> <ul style="list-style-type: none"> get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the Servers

7.8.3 HTTP Service Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Format	%client.name% %client.id% %auth-user-name% %datetime% %request% %status% % %response.length% % %headers.host% %cookies.JSESSIONID% %time-taken%	1-512	Items to be output to the access log.	No

Item name	Default value	Range	Explanation	Restart required
	% %thread.id% %thread.name% %webserver.name% %			
Rotation type	logsize	- logsize - time	To back up the HTTP access log, whether the backup is performed using log size (logsize) or log collection time (time) is shown.	No
Log size	1	1-512 (MB)	The HTTP access log maximum size is specified. If the size that was specified for the log file is reached, rotation is performed.	No
Log collection time	0	0-23 (Hours)	The time at which rotation is executed for the HTTP access log is specified. Rotation is performed at the specified time each day.	No
Number of generations	5	1-999	The number of generations for the archiving of the rotation HTTP access log is specified. If the number of archived log files exceeds the specified number of generations, the oldest generation log file is deleted.	No
HTTP listener name		- Alphanumerics or special characters ('\\', '-', '_', ':', '/', ';', '#'). - Only alphanumerics or '_' can be specified as the start character.	This is the HTTP listener name.	
Network address	0.0.0.0	String	Specify a valid server IP address, or '0.0.0.0'. Specify '0.0.0.0' to use all valid server IP addresses. If the property name is specified, a value must be specified for the server instance property.	No
Listener port	Server instances under IJServer clusters The HTTP_LISTENER_PORT system property (automatic assignment of port number) Interstage Java EE DAS Service - HTTP listener port for operation management: 12001	Server instances under IJServer clusters 1-65535 (*1) Interstage Java EE DAS Service - HTTP listener port for operation management: 1-65535 - HTTP listener port: 1-65535 (*1) *1 If the connection is via a web server, this will be 5001-65535.	Specify the port number that the listener listens for, or the property name. Server instances under IJServer clusters The port number of the server instance under the IJServer cluster is defined as the system property by default. To change the port number of the server instance under the IJServer cluster, do not update this item. Change the HTTP_LISTENER_PORT system property value instead. When the web server and IJServer cluster are running on separate machines, the web server connector connection destination information must be configured together with the above settings.	Yes

Item name	Default value	Range	Explanation	Restart required
	- HTTP listener port: 28080			
Block	false	- true - false	<p>Specify the HTTP listener behavior.</p> <ul style="list-style-type: none"> - true: Requests from the client are received asynchronously. - false: Requests from the client are received synchronously. <p> Note</p> <p>.....</p> <p>Normally, the default value (false) may be used.</p> <p>.....</p> <p>Specify 'true' as a method of preventing the following Windows-specific problems:</p> <ul style="list-style-type: none"> - The HTTP listener restricts the number of ports that are used - Nonpaged pool leaks in Windows Server(R) 2003 	Yes
Acceptor threads	1	1-2147483647	<p>The number of Acceptor threads is modified.</p> <p>Normally, there is no need to change this from the default (1).</p> <p>To change this, set a value that does not exceed the number of CPUs in your system.</p> <p>Acceptor Threads are threads which accept connections. Connections which are accepted are inserted in a queue. The connections are taken out of this queue by worker threads.</p>	No
Security	<p>- Security of HTTP listener for operation management: true</p> <ul style="list-style-type: none"> - If "Use" was selected during installation - If true was set for the -ssl option in the ijinit command (If the -ssl option is not specified, true will be set (true is 	- true - false	<p>The values specified for "Use SSL encryption communication" at the time of the installation, and for the -ssl option when the ijinit command is executed, will be reflected in the security of the HTTP listener for operation management.</p>	No

Item name	Default value	Range	Explanation	Restart required
	the default.) - HTTP listener security: false			
X-Powered-By header field	false	- true - false	Determines whether to include the X-Powered-By header field in the HTTP response header generated by the web container.	No
Listener	true	- true - false	Whether to enable the HTTP listener when the server is restarted is specified.	No
Certificate nickname		String	This is the existing server key pair and certificate name.	Yes
SSL2	false	- true - false	Whether to enable the "SSL2" security protocol is specified.	Yes
SSL2 encryption method		- rc4 - rc4export - rc2 - rc2export - idea - des - desede3	The encryption method group that can be used in "SSL2" is selected.	Yes
SSL3	true	- true - false	Whether to enable the "SSL3" security protocol is specified.	Yes
SSL3 encryption method		(*1)	The encryption method group that can be used in "SSL3" is selected.	Yes
TLS	true	- true - false	Whether to enable the "TLS" protocol is determined.	Yes
HTTP listener additional property			Refer to "Properties that can be specified as an "HTTP listener property"".	
Encoding that is used in request URI analysis	UTF-8	Encoding supported in Java, such as "SJIS" and "EUC_JP"	This is specified in uriEncoding. The encoding that is used in request URI analysis is specified.	No
Timeout time	30000	1-2147483647 (Milliseconds)	This is specified in connectionUploadTimeout. The timeout time is specified. In the following case, requests are processed as the timeout. - Communication from the web server connector is lost when the specified time is reached	No

Item name	Default value	Range	Explanation	Restart required
			 Note The web container checks the timeout twice using the value that was specified. For this reason, the value to be specified that is required for the operating environment must be divided into two and then specified. For example, if the timeout is 1 minute (60000 milliseconds), this is specified as 30 seconds (30000 milliseconds).	
Maximum POST request size	2097152	1-2147483647	Specify this in property: maxPostSize. Specify the maximum BODY size (in bytes) which is sent using POST. This value will be enabled if it was obtained using the following HttpServletRequest APIs: <ul style="list-style-type: none"> - getParameter - getParameterNames - getParameterValues - getParameterMaps If this is greater than the value specified for the Content-Length header value, IllegalStateException is thrown. This will be disabled when Reader/ServletInputStream, which was obtained using getReader/getInputStream of ServletRequest, is used for reading. In this case, if it is necessary to limit the size, check the size on the application side.	No
Maximum value for the number of HTTP request parameters	10000	-2147483648-2147483647	Specify this in property: maxParameterCount. Set the maximum value for the number of HTTP request parameters. The web container reads parameters up to the maximum value and ignores the parameters that have exceeded the maximum value. If a negative number was specified, the number of parameters is unlimited. Note that, if the maximum size for POST requests (maxPostSize) has also been specified, the maximum size limitation on the POST requests is enabled first.	No
Operation mode for access to the web container	nocheck	<ul style="list-style-type: none"> - direct - webserver - nocheck 	Specify this in property: requestCheck. Specify the operation mode for access to the web container. This setting is "direct" or "webserver", and is tied to the web server connector linkage setting. <ul style="list-style-type: none"> - direct: Specify this if the web server is not to be used. If a request is received via the web server, the web container will return "400 Bad Request" to the client. - webserver: Specify this if the web server is to be used. If a request is received without going via the web server, the web container will return "400 Bad Request" to the client. 	No

Item name	Default value	Range	Explanation	Restart required
			<p>- nocheck: Specify this to execute fault monitoring via the web server, and for the web container, using a load balancer device. No operation mode check will be executed. In this case, for security enhancement, web server connector and load balancer device IP addresses will be allowed using the IP access control feature.</p> <p> Note</p> <p>.....</p> <p>If the web server connector linkage settings are changed after the property definition value is changed, the definition value that was changed will be changed to "direct" or "webservice".</p> <p>.....</p>	
Virtual server name		<ul style="list-style-type: none"> - Alphanumerics or special characters ('\\', '_', '\\.', '\\/', '\\;', '\\#'). - Only alphanumerics or '_' can be specified as the start character. 	This is the virtual server name.	
Virtual server additional property			Refer to "Properties that can be specified as a "Virtual server property".	
Client address that receives requests		IP format (including IPv6)	<p>This is specified in allowRemoteAddress.</p> <p>The remote address of the web server that receives requests for the IJServer cluster is specified using a regular expression. If more than one IP address is specified, separate each one using a comma (",").</p> <p>If an remote address is not specified, connections are allowed from all client. From a security perspective, it is recommended that this item be set.</p> <p>Note1: To specify a web server on the same machine, specify 127.0.0.1 (loopback address).</p> <p>Note2: In the regular expression, the period (".") is an optional character. To specify the complete client address that receives requests, add escape characters ("\" or a backslash).</p> <p> Example</p> <p>.....</p> <p>127\\.0\\.0\\.1</p> <p>.....</p> <p>For details on regular expressions, refer to the "java.util.regex.Pattern class" in the "Java™ 2 Platform Standard API Specs".</p>	No

Item name	Default value	Range	Explanation	Restart required
Number of threads	64	2-2048 (Initial number of threads or greater)	This is the maximum number of request processing threads.	No
Initial number of threads	16	2-2048 (Number of threads or lower)	This is the number of request processing threads that can be used when the server starts up. Note: If a value greater than the thread-count value is specified, this value changes to the value specified for thread-count.	No
Thread incrementation	16	2-2048	This is the number of request processing threads that are added if the number of requests exceeds the initial number of threads.	No
Keep alive timeout	15	10-2147483647	This is the maximum number of seconds the keep alive connection will be retained.	No
Queue size	200	1-2147483647	This is the maximum number of HTTP connection queues.	No
Maximum pending count	200	1-2147483647	This is the maximum number of pending connections that are allowed to the HTTP listener.	No
Receive buffer size	49152	1-2147483647	Specify the receive buffer size for the HTTP listener (in bytes). This item must be specified so that received buffer size is greater than the total size of the request line and request header. If the value specified for the total size of the request line and all the request header is exceeded, ISJEE_WEB0777 or PWC4662 is output to the server log, the request is interrupted without being processed, and an error is returned to the client. Additionally, if the value for this item is increased, the heap memory usage may become enlarged. Add the estimated value for the memory usage using the following formula: Receive buffer size * HTTP service queue size (Unit: Bytes)	
HTTP protocol version	HTTP/1.1	String	This is the HTTP protocol version that is used.	No
SSL	true	- true - false	The server security is enabled or disabled globally.	No
HTTP service additional property			Refer to ""Properties that can be specified as an "HTTP service property"".	
Number of requests which can be processed in one connection	0	-1-2147483647	Specify this in maxKeepAliveRequests. Specify whether keep alive is enabled/disabled, and the number of requests which can be processed in one connection. - 0: Keep alive disabled	No

Item name	Default value	Range	Explanation	Restart required
			<ul style="list-style-type: none"> - -1: Keep alive enabled, and no limit on the number of requests than can be processed - 1 or more: Upper limit for the number of requests which can be processed in one connection 	
Access log	true	<ul style="list-style-type: none"> - true - false 	Specify whether to enable the HTTP access log output. <ul style="list-style-type: none"> - true: Enabled - false: Disabled 	No
Trace log	true Note: The initial value is true, however the default value is false.	<ul style="list-style-type: none"> - true - false 	Specify the HTTP trace log behavior. <ul style="list-style-type: none"> - true: Enabled - false: Disabled 	Yes
Log size for trace log	10	1-2000 (Unit: MB)	Specify the maximum HTTP trace log size. The log file is rotated when the size that was specified is reached.	Yes
Number of trace log generations	10	1 - 999	Specify the number of generations of the HTTP trace log for which rotation was executed that will be archived. If the number of archived log files exceeds the number of generations that were specified, the oldest generation log file is deleted.	Yes
Behavior of the TRACE method	false	<ul style="list-style-type: none"> - true - false 	Specify this in property: traceEnabled. Set the behavior of the HTTP TRACE method. <ul style="list-style-type: none"> - true: Enabled - false: Disabled 	No

*1 The encryption method group that can be used in "SSL3" is as follows.

- SSL_RSA_WITH_RC4_128_MD5
- SSL_RSA_WITH_RC4_128_SHA
- TLS_RSA_WITH_AES_128_CBC_SHA
- SSL_RSA_WITH_3DES_EDE_CBC_SHA
- TLS_DHE_RSA_WITH_AES_128_CBC_SHA
- SSL_DHE_RSA_WITH_3DES_EDE_CBC_SHA
- TLS_DHE_DSS_WITH_AES_128_CBC_SHA
- SSL_DHE_DSS_WITH_3DES_EDE_CBC_SHA
- SSL_RSA_WITH_DES_CBC_SHA
- SSL_DHE_RSA_WITH_DES_CBC_SHA
- SSL_DHE_DSS_WITH_DES_CBC_SHA
- SSL_RSA_EXPORT_WITH_RC4_40_MD5
- SSL_RSA_EXPORT_WITH_DES40_CBC_SHA
- SSL_DHE_RSA_EXPORT_WITH_DES40_CBC_SHA
- SSL_DHE_DSS_EXPORT_WITH_DES40_CBC_SHA

- SSL_RSA_WITH_NULL_MD5
- SSL_RSA_WITH_NULL_SHA

Property

Properties that can be referenced/set are as follows (only some properties are shown in the table below).

Properties that can be specified as an "HTTP listener additional property"

Item name	Property name
Encoding that is used in request URI analysis	uriEncoding
Timeout time	connectionUploadTimeout
Maximum POST request size	maxPostSize
Maximum value for the number of HTTP request parameters	maxParameterCount
Operation mode for access to the web container	requestCheck

Properties that can be specified as a "Virtual server additional property"

Item name	Property name
IP address of the client that receives requests	allowRemoteAddress

Properties that can be specified as an "HTTP service additional property"

Item name	Property name
Number of requests which can be processed in one connection	maxKeepAliveRequests
Behavior of the TRACE method	traceEnabled

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	2.5 Functionality Provided in Web Container
Tuning method	Web Container Tuning
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the configs.config.http-service

7.8.4 IIOP Service Definition Items

Definition Items

IIOP service definitions

Item name	Default value	Range	Explanation	Restart required
IIO client authentication	false	- true - false	If true is specified, requests for which there is no authentication information are not accepted, and the authentication-required flag is set in the IOR that is sent to the client.	Yes

IIO service ORB definitions

Item name	Default value	Range	Explanation	Restart required
Thread pool ID		String	The thread pool ID of the default thread pool is specified. Specify "thread-pool-1".	Yes
Maximum message fragment size	1024	128-2147483647	The maximum IIO message fragment size is set. (*1)	Yes
Total number of connections	1024	0-2147483647	Specify the maximum number of simultaneous connections for IIO communication.	Yes
ORB additional property		Property name - ISJEELogIiopAccessRotationsize - ISJEELogIiopAccessRotationcount - ISJEELogIiopAccessMode Property value - ISJEELogIiopAccessRotationsize 1-2000(MB) - ISJEELogIiopAccessRotationcount 1-999 - ISJEELogIiopAccessMode - access - trace - none	Specify the output settings for the IIO access log. For details on the properties, refer to the following in "Java EE Application Logs" in the "Java EE Application Operation" chapter: "4.22.4 IIO Access Log" "4.22.6 Rotation of the Log File" , "For IIO Access Logs"	Yes

IIO listener definitions

Item name	Default value	Range	Explanation	Restart required
IIO listener name		- orb-listener-1 - SSL - SSL_MUTUALAUTH	A name for identifying the listener is specified.	
Network address		String	Host name and IP address valid at the server, or "0.0.0.0". Specify "0.0.0.0" to use all network addresses valid at the server.	Yes

Item name	Default value	Range	Explanation	Restart required
			If "0.0.0.0" is specified, the IP address of the server host is used for IIOP communication with the server application.	
Listener port	<ul style="list-style-type: none"> - For Interstage Java EE DAS service: <ul style="list-style-type: none"> - orb-listner-1:23600 - SSL:23601 - SSL_MUTUAL_AUTH:23602 - For Server instance under IJServer cluster: The following system property default values: <ul style="list-style-type: none"> - IOP_LISTENER_PORT - IOP_SSL_LISTENER_PORT - IOP_SSL_MUTUALAUTH_PORT 	1-65535	<p>The listener standby port number is entered.</p> <p>Solaris32/64 Linux32/64</p> <p>If a Java EE application is operated by a general user, ports 1-1024 cannot be used.</p> <p> Note</p> <p>.....</p> <p>The port number of the server instance under the IJServer cluster is defined as the system property.</p> <p>To change the port number of the server instance under the IJServer cluster, do not update this item. Change the system property value instead.</p> <p>For details on the system properties, refer to "7.8.1 Properties Used when Creating and Updating Definitions".</p> <p>.....</p>	Yes
Listener	true	<ul style="list-style-type: none"> - true - false 	Whether to enable the listener is specified.	Yes

*1 Do not set a value that is less than 1024bytes. If the maximum message separation size is less than 1024bytes, the number of threads that are required in the server may exceed the estimated number. For the Interstage Java EE Admin Console, the valid values are 1024, 2048, 4096, 8192, 16384 and 32768 and for the asadmin command values between 128 and 2147483647 are valid.

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	2.12 ORB (Object Request Broker)/RMI-IIOP
Tuning method	ORB Tuning
Commands	<p>The following subcommands of asadmin:</p> <ul style="list-style-type: none"> get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the configs.config.iiop-service

7.8.5 Managed Service Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
JMX connector name	system	system	This is the system JMX connector name (system) used for JMX connections between instances. This value cannot be changed.	
Protocol	rmi_jrmp	rmi_jrmp	This is a protocol (rmi_jrmp) that is supported by the JMX connector. This value cannot be changed.	Yes
Address	0.0.0.0	String	<p>This is specified in the IP address of the specified service when registering the JMX connector server stub. If the system has more than one IP address (network interface), specify an IP address that can be referenced from the server to which the connection is made.</p> <p>To allow access from all network interfaces, specify '0.0.0.0'.</p> <p> Note</p> <p>.....</p> <p>The Interstage Java EE Node Agent service must be restarted after the settings are updated.</p> <p>.....</p>	Yes
Port	<ul style="list-style-type: none"> - For Interstage Java EE DAS service: None - For Server instance under IJServer cluster: Default value for the JMX_SYSTEM_CONNECTOR_PORT system property (see note in Explanation) 	<ul style="list-style-type: none"> - For Interstage Java EE DAS service: 1-65535 - For Server instance under IJServer cluster: \$ {JMX_SYSTEM_CONNECTOR_PORT} (see note in Explanation) 	<p>The connection port number of the RMI registry that is used by the JMX connector is specified. Access the number that was specified from the client.</p> <p>Solaris32/64 Linux32/64</p> <p>If a Java EE application is operated by a general user, ports 1-1024 cannot be used.</p> <p>Note:</p> <p>The port number of the server instance under the IJServer cluster is defined as the system property.</p> <p>To change the port number of the server instance under the IJServer cluster, do not update this item. Change the system property value instead.</p> <p>For details on the system properties, refer to "7.8.1 Properties Used when Creating and Updating Definitions".</p>	Yes
Security realm name	admin-realm	admin-realm	<p>This is the name of the security realm for the server that is running from this JMX connector.</p> <p>This value cannot be changed.</p>	Yes
Auto-reload	false	<ul style="list-style-type: none"> - true - false 	Enables/disables auto-reload.	Yes
Auto-reload polling interval	2	1-2147483647	Frequency (in seconds) with which the server checks changes to the .reload file in the application in which auto-reload is enabled.	Yes
Session timeout	60	0-2147483647 (minutes)	<p>Session timeout value for the Interstage Java EE management console.</p> <p>This item can be set for only the Interstage Java EE DAS service.</p>	Yes
JMX connector			Refer to "Properties that can be specified as a "JMX connector property"".	

Item name	Default value	Range	Explanation	Restart required
additional property				

Property

Properties that can be referenced/set are as follows (only some properties are shown in the table below).

Properties that can be specified as an "JMX connector additional property"

Item name	Property name
Client host name	client-hostname



Note

If the [client-hostname] property is updated, then the Interstage Java EE Node Agent service must be restarted.

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the configs.config.admin-service

7.8.6 Connector Service Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Shutdown timeout	30	1-2147483647 (Seconds)	Number of seconds that the application server waits for completion of resource adapter stop processing.	Yes

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	Connector Tuning
Commands	The following subcommands of asadmin: get subcommand set subcommand

Contents	Reference destination
	list subcommand
Name of definition item in asadmin	Definition Items of the configs.config.connector-service

7.8.7 Web Container Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Additional Property of Manager property			Cannot be used in this version.	
Additional Property of Session property			Cannot be used in this version.	
Additional Property				Yes

Property

Properties that can be referenced/set are as follows (only some properties are shown in the table below).

Properties that can be specified as an "additional property"

Item name	Property name
Dispatch count upper limit	dispatcher-max-depth
Add HttpOnly attribute	cookieHttpOnly

Additional property definition items

Item name	Default value	Range	Explanation
Dispatch count upper limit	20	1-2147483647	Maximum number of times there is a dispatch in one request. If there is a dispatch when the upper limit is exceeded, PWC1232 is output to the container log.
Add HttpOnly attribute	false	- true - false	Specify whether to add the HttpOnly attribute to the session cookie: - true: The HttpOnly attribute is added - false: The HttpOnly attribute is not added However, if the Interstage web application deployment descriptor (sun-web.xml) cookieHttpOnly property was specified, the value that was specified in sun-web.xml will be used.

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	2.5 Functionality Provided in Web Container
Tuning method	Web Container Tuning
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the configs.config.web-container

7.8.8 EJB Container Definition Items

Definition Items

Enterprise Bean Instance Caching

Item name	Default value	Range	Explanation	Restart required
Maximum cache size	512	0-2147483647 (Change in cache size or higher)	<ul style="list-style-type: none"> - none Maximum number of Bean instances that can be cached. Once the limit is reached, trying to create new instances will fail, an exception will be returned to the caller, and processing will be interrupted. - file This is the number that determines whether the cached Bean instance will be a target of passivate.^{(*1)(*2)} <p>If 0 is set, the cache size is unlimited.</p> <p>When an application is started, an area sufficient to store only the set number of instances is reserved. Therefore, if the value is changed significantly, the heap size must be tuned, regardless of whether caching occurs up to the specified value.</p>	Yes
Change in cache size	32	1-2147483647 (Maximum cache size or lower)	<ul style="list-style-type: none"> - none This item is only enabled for Entity Bean. - file This is the monitoring time that determines whether the cached Bean instance will be a target of passivate (in seconds). The cache is monitored at the specified time interval, and Bean instances in an idle state for the specified time or longer will be passivate targets. Number of Bean instances passivated and removed from the cache when passivate occurs.^(*2) 	Yes
Cache Idle Timeout	600	0-2147483647 (Seconds)	<ul style="list-style-type: none"> - none This is the monitoring time which determines whether to delete cached Bean instances. The cache is monitored at the specified time interval, and Bean instances in an idle state for the specified time or longer will be deleted. - file This is the monitoring time that determines whether the cached Bean instance will be a target of passivate (in seconds).The cache is monitored for the specified time interval and, if the idle state continues for a Bean instance for longer than that, then the 	Yes

Item name	Default value	Range	Explanation	Restart required
			instance becomes a passivate target. ^(*2) If 0 is set, then the cache idle timeout does not operate.	
Delete timeout	5400	0-2147483647 (Seconds)	<ul style="list-style-type: none"> - none This is disabled. - file This is the maximum time for which the Bean instance can exist after it is not used. If a business method is not executed and this time is exceeded for a Bean instance, the EJB container removes the interactive status of the relevant instance from the file system. If a value lower than the 'Cache Idle Timeout' value is specified, then the Bean instance is passivated and then deleted.^(*3) If 0 is set, then 'Delete timeout' does not operate. 	Yes
Delete policy for selected contents	nru ^(*3)	<ul style="list-style-type: none"> - nru - fifo - lru 	<ul style="list-style-type: none"> - none Policy for deletion of Beans in the cache: <ul style="list-style-type: none"> - nru (Not Recently Used): Old Beans that have not been accessed recently are deleted in order of priority. - fifo (First In, First Out): Oldest bean in the cache. - lru (Least Recently Used) Entity Beans are always deleted using the FIFO policy. - file Policy for deletion of Beans in the cache. When an excess instance is passivated and removed from cache, this algorithm determines which Bean instance is deleted. <ul style="list-style-type: none"> - nru: (Not Recently Used) Old Beans that have not been accessed recently are deleted in order of priority. - fifo: (First In First Out) Oldest Bean in the cache. - lru (Least Recently Used) Entity Beans are always deleted using the FIFO policy. 	Yes

Enterprise Bean instance pooling

Item name	Default value	Range	Explanation	Restart required
Initial and Minimum pool size	0	0-2147483647 (Maximum pool size or less)	<p>This is the number of instances that will be secured in the pool.</p> <p>During access to an EJB application or during idle timeout monitoring, if the pool size is smaller than the specified number, the EJB container generates Bean instances in a different thread to the process thread and adds them to the pool. The change in pool size amount is applied as the quantity to be generated. If the specified value is greater than the maximum pool size, the maximum pool size is assumed as the initial and minimum pool size.</p> <p>When the number of instances in the pool resulting from processing requests falls below the specified value, the EJB container generates Bean instances and adds them to the pool, until the number of pooled Bean instances reaches the specified value.</p>	Yes

Item name	Default value	Range	Explanation	Restart required
Maximum pool size	32	0-2147483647 (Initial and Minimum pool size or greater, and Change in pool size or greater)	This is the maximum number of pooled Bean instances. When the number of instances in the pool at completion of processing by a Bean instance is the quantity specified for this item, the used Bean instance is not returned to the pool and is discarded. If 0 is set, the pool size is unlimited.	Yes
Change in pool size	8	0-2147483647 (Maximum pool size or less)	This is the pool size that is reduced or enlarged at one time. Adjustments are made so that the maximum pool size is neither exceeded nor falls below the minimum value. If 0 is specified for this item or to the minimum pool size, then this value is not applied, and instances are generated one at a time.	Yes
Pool Idle Timeout	600	0-2147483647 (Seconds)	This is the maximum tolerance idle time for instances in the pool (in seconds). The EJB container monitors the pool at the intervals in the set value and adjusts the pool size (*4). If the number of instances in the pool is greater than the minimum pool size, then instances not accessed for longer than the set value are discarded. If the number of instances in the pool is less than the minimum pool size, instances are added in accordance with the change in pool size amount. If 0 is set, then monitoring is not performed.	Yes

EJB Timer service

Item name	Default value	Range	Explanation	Restart required
Minimum delivery interval	7000	1-2147483647 (Milliseconds)	This is the minimum delivery interval for the EJB Timer service (in milliseconds). If the delivery interval specified when the EJB timer is generated is smaller than this value, then this value is used.	Yes
Maximum number of re-deliveries	1	1-2147483647 (Times)	This is the maximum value for the number of EJB Timer deliveries. If callback processing does not succeed despite execution of the number of re-deliveries specified in this setting, then the EJB timer service deletes the relevant EJB timer.	Yes
Re-delivery interval	5000	1-2147483647 (Milliseconds)	This is the re-delivery interval for the EJB Timer (in milliseconds).	Yes
Timer data source	jdbc/ __TimerPool	String	This is the data source that is used by the EJB Timer service.	Yes
EJB Timer service additional property			Cannot be used in this version.	

Other

Item name	Default value	Range	Explanation	Restart required
SFSB persistence type	none	- none - file	Method used to store the cached Stateful Session Bean instance information. (*5)	Yes
Session storage location	\$ {com.sun.aas.instanceRoot}/ session-store	String	- none This is disabled. - file Directory where the interactive status of passivated Bean instances is stored. If null characters are set, the default value is applied. If a relative path was specified, the relative path from the IJServer cluster current directory will be used.	Yes
Additional properties			Cannot be used in this version.	

*1 When method execution is completed and a Bean instance is returned to cache, if the Bean instances in the cache exceed the threshold value calculated from 'Maximum cache size' and 'Change in cache size' amount, then the excess instance becomes a passivate target. The following formulas are used to calculate the threshold value:

- If the change in cache size amount exceeds the maximum cache size:

$$\text{Threshold value} = \text{Maximum cache size} \times 0.75 + 1$$

- If the change in cache size amount does not exceed the maximum cache size:

$$\text{Threshold value} = \text{Maximum cache size} - \text{change in cache size amount} + 1$$

*2 For instances that are targets of passivation, the number that will be passivated is equal to the value specified for the cache resize quantity (if this number is less than 8, however, they will not be passivated).

*3 The inequality relationship for the values specified for 'Delete Timeout' and 'Cache Idle Timeout', and the behavior, are shown below.

- When 'Delete Timeout' is greater than 'Cache Idle Timeout':

Upon 'Cache Idle Timeout', an idle Bean becomes a target of passivation.

Upon 'Delete Timeout', a passivated Bean is deleted.

- When 'Delete Timeout' is less than or equal to 'Cache Idle Timeout':

Upon 'Cache Idle Timeout', an idle Bean becomes a target of passivation, and is deleted immediately after it is passivated.

*4 Pool monitoring is performed at intervals of the specified value but, after monitoring has been performed once after startup, the EJB application usage status is checked and unused Bean instances do not adjust the pool size.

*5 In the Interstage Java EE DAS service, the SFSB persistence type is fixed as "none".

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	2.8 Functionality Provided in EJB
Tuning method	EJB Container Tuning
Commands	The following subcommands of asadmin: get subcommand set subcommand

Contents	Reference destination
	list subcommand
Name of definition item in asadmin	Definition Items of the configs.config.ejb-container

7.8.9 Message-driven Bean Default Pool Definition Items

Definition Items

Enterprise Bean instance pooling

Item name	Default value	Range	Explanation	Restart required
Initial and Minimum pool size	0	0-2147483647 (Maximum pool size or less)	<p>This is the number of instances that will be secured in the pool.</p> <p>During access to an EJB application or during idle timeout monitoring, if the pool size is smaller than the specified number, the EJB container generates Bean instances in a different thread to the process thread and adds them to the pool. The change in pool size amount is applied as the quantity to be generated. If the specified value is greater than the maximum pool size, the maximum pool size is assumed as the initial and minimum pool size.</p> <p>When the number of instances in the pool resulting from processing requests falls below the specified value, the EJB container generates Bean instances and adds them to the pool until the number of pooled Bean instances reaches the specified value.</p>	Yes
Maximum pool size	32	0-2147483647 (Initial and Minimum pool size or greater, and Change in pool size or greater)	<p>This is the maximum number of pooled Bean instances.</p> <p>When the number of instances in the pool at completion of processing by a Bean instance is the quantity specified for this item, the used Bean instance is not returned to the pool and is discarded.</p> <p>If 0 is set, the default value is set.</p>	Yes
Change in pool size	8	1-2147483647 (Maximum pool size or less)	<p>This is the pool size that is reduced or enlarged at one time.</p> <p>Adjustments are made so that the maximum pool size is neither exceeded nor falls below the minimum value.</p> <p>If 0 is set, the default value is set.</p>	Yes
Idle Timeout	600	1-2147483647 (seconds)	<p>This is the maximum tolerance idle time for instances in the pool.</p> <p>The EJB container monitors the pool at the intervals in the set value and adjusts the pool size (*1).</p> <p>If the number of instances in the pool is greater than the minimum pool size, instances where there has been no access for longer than the set value are discarded.</p> <p>If the number of instances in the pool is less than the minimum pool size, instances are added in accordance with the change in pool size amount.</p> <p>If 0 is set, the default value is set.</p>	Yes

Other

Item name	Default value	Range	Explanation	Restart required
Additional properties			Cannot be used in this version.	

*1 Pool monitoring is performed at intervals of the specified value but, after monitoring has been performed once after startup, the EJB application usage status is checked and unused Bean instances do not adjust the pool size.

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	2.8 Functionality Provided in EJB
Tuning method	EJB Container Tuning
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the configs.config.mdb-container

7.8.10 JMS Service Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Host	localhost	String	Define the name of the host which runs the message broker which is referenced by the IJServer cluster.	Yes
Port	7676	1-65535	Define the port number of the message broker which is referenced by the IJServer cluster.	Yes
Admin user ID		String	Define the name of the admin user of the message broker which is referenced by the IJServer cluster. This definition is used when the confirmation of JMS send destination resources referenced by the Message-driven Bean application is executed for the message broker.	Yes
Admin user password		String	Define the administrator password of the message broker which is referenced by the IJServer cluster. This definition is used when the confirmation of JMS send destination resources referenced by the Message-driven Bean application is executed for the message broker.	Yes

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	2.19 JMS Functions that are Provided 4.17 JMS Operation Methods
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand

Contents	Reference destination
Name of definition item in asadmin	Definition Items of the configs.config.jms-service

7.8.11 Logger Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Log output directory	<p>Windows32/64</p> <p><code>\${com.sun.aas.instanceRoot}\logs</code></p> <p>Solaris32/64 Linux32/64</p> <p><code>\${com.sun.aas.instanceRoot}/logs</code></p>	String	<p>Specify the root path of the server log, Java VM log, HTTP access log, IIOP access log, HTTP trace log and monitor logging log output directory. Specify the full path.</p> <p>Specify the path so that its length, including the file name (file name after rotation), is within the maximum value range for the OS. Decide on the path length after considering the collection of the HTTP access log.</p> <p>If the top part of the specified value is not <code>\${com.sun.aas.instanceRoot}</code>, the log file output directory will not be deleted when the IIOP cluster and server instance are deleted. Delete the directory manually.</p>	Yes
Rotation type	logsize	<ul style="list-style-type: none"> - logsize - time 	To back up the server log, Java VM log and monitor logging log, specify whether to execute the backup using the log size (logsize) or the log collection time (time). (*1)	Yes
Log size	1	1-512 (MB)	Specify the maximum size of the server log, Java VM log and monitor logging log. The log file is rotated when the size that was specified is reached. (*1)	Yes
Log collection time	0	0-23	Specify the time at which the server log, Java VM log and monitor logging log are rotated. Logs are rotated every day at the time that was specified. (*1)	Yes
Number of generations	1	1-9	Specify the number of generations that will be archived for the server log, Java VM log and monitor logging log for which rotation was executed. If the number of archived log files exceeds the number of generations that were specified, the oldest generation log file is deleted. (*1)	Yes

*1 The HTTP access log settings are configured in "7.8.3 HTTP Service Definition Items", and the IIOP access log settings are configured in "7.8.4 IIOP Service Definition Items".

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	4.22 Java EE Application Logs
Tuning method	

Contents	Reference destination
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the configs.config.log-service

7.8.12 Security Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Default realm	file	String	This is a realm that is used for authentication in the server.	No
JACC	default	String	This is the class name of the JACC provider that is set.	No
Realm name		<ul style="list-style-type: none"> - Alphanumerics or special characters (\, ', '_, '!', '/', '!', '#). - Only alphanumerics or '_' can be specified as the start character. 	This is the realm name.	
Realm class name		String	<p>This is the realm class name.</p> <ul style="list-style-type: none"> - For ldap realm: com.sun.enterprise.security.auth.realm.file.FileRealm - For file realm: com.sun.enterprise.security.auth.realm.file.FileRealm - For OS realm: com.fujitsu.interstage.javaee.security.auth.realm.os.OSRealm 	No
Realm additional property			For details on the properties that can be specified, refer to "Property".	No
Additional property				
JAAS context			<p>This is specified in jaas-context.</p> <p>Specify the login module type used by the realm. Set the following values, according to the realm:</p> <ul style="list-style-type: none"> - The file realm: fileRealm - The ldap realm: ldapRealm - The OS realm: osRealm 	No
Group assignment			<p>This is specified in assign-groups.</p> <p>The group to be allocated is specified for all authenticated users. If more than one group is specified, separate each one using a comma (",").</p>	No
Key file			This is specified in File.	Yes

Item name	Default value	Range	Explanation	Restart required
			The complete path and name of keyfile is specified.	
Directory			This is specified in Directory. The URL of the directory service to be connected to is specified.	No
Base DN			This is specified in base-dn. The top directory DN for user search is specified.	No
Conditions for user search	uid=%s		This is specified in search-filter. The conditions for user search are specified. This is described using the following format: "Attribute name set as the user ID"=%s	No
Conditions for group search	uniquemember=%d		This is specified in group-search-filter. The conditions for group search are specified. This is described using the following format: "Attribute name set as the user dn"=%d	No
Top directory DN for group search	Same as the public directory		This is specified in group-base-dn. The top directory DN for group search is specified.	No
Attribute name set as the group name that is mapped to the role	"CN"		This is specified in group-target. The attribute name set as the group name that is mapped to the role is specified.	No
Authentication information pool	true	- true - false	Determines whether authentication information should be pooled. Specified in com.sun.jndi.ldap.connect.pool.	No

Properties

Properties that can be referenced/set are as follows.

Properties that can be specified as a "Realm additional property" (regardless of the realm)

Item name	Property name
JAAS context	jaas-context
Group assignment	assign-groups

Properties that can be specified as a "Realm additional property" (when file realm is used)

Item name	Property name
Key file	File

Properties that can be specified as a "Realm additional property" (when ldap realm is used)

Item name	Property name
Directory	Directory
Base DN	base-dn
Conditions for user search	search-filter

Item name	Property name
Conditions for group search	group-search-filter
Top directory DN for group search	group-base-dn
Attribute name set as the group name that is mapped to the role	group-target
Authentication information pool	com.sun.jndi.ldap.connect.pool

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	5.2 Java EE Application Security Functionality 5.3 Method of Operation Using the Security Functionality
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the configs.config.security-service

7.8.13 Transaction Service Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
On restart	true	- true - false	A transaction might not be completed (indoubt status) due to either a server or resource manager crash. If this parameter is enabled, the indoubt status is recovered and the transaction is completed when the server starts. (*1)	Yes
Transaction timeout	0	0-2147483647 (Seconds)	Specify the time until the transaction is complete (in seconds). If the IJServer cluster does not complete a transaction within the set time, the transaction status is changed to "MarkedRollback". (*2) If 0 is specified, then the server continues to wait for completion of transactions. In addition to setting this value in the transaction service, if the container performs transaction control in Enterprise JavaBeans, then it is also possible to specify the cmt-timeout-in-seconds tag in the Interstage EJB application deployment descriptor (sun-ejb-jar.xml) to specify the timeout value for each Enterprise JavaBean.	(*3)
Retry timeout	600	0-2147483647 (Seconds)	When a transaction spans more than one server, the one that started it might query another server to attempt to fetch the transaction results. This parameter sets the amount of time the server attempts to reconnect to a server that cannot be accessed. If 0 is specified, reconnection is not performed.	(*3)

Item name	Default value	Range	Explanation	Restart required
Transaction log location	\${com.sun.aas.instanceRoot}/logs	String	Transaction logs record information concerning each transaction for use in maintaining data consistency in related resources and for fault recovery. Transaction logs are saved to the "[JServer cluster instance name]/tx" subdirectory of the directory specified in this parameter. (The "[JServer cluster instance name]/tx" subdirectory is generated automatically). If a relative path is specified, \${com.sun.aas.instanceRoot}/logs is the reference point for the relative path. For information concerning the default value \${com.sun.aas.instanceRoot} variable, refer to "7.8.1 Properties Used when Creating and Updating Definitions".	Yes
Special result determiner	rollback	- rollback - commit	If a related resource cannot be accessed within the time specified as the retry timeout, the transaction is completed using the method specified in this parameter. Since committing an uncertain transaction might damage the consistency of application data, leave this parameter set to "rollback" unless there is an appropriate reason for setting "commit".	Yes
Key point interval	65536	1-2147483647 (Transaction number)	Keypoint refers to compression processing for transaction log files. This parameter can be used to specify the interval of the number of transactions for which keypoint processing is executed.	(*3)
Additional properties		Property name: - Alphanumerics, multibyte characters, or special characters ('-', '_', ':', '/', ';', '#') - The first character must be alphanumeric or multibyte. Property value: - String	Property items can be added by combining a name and a value.	Yes

*1 The start of activation may be delayed during transaction recovery for a reason such as being unable to access the resources of another server. In these cases, Interstage attempts reconnection during the time set as the retry timeout and, if reconnection still fails, completes the transaction using the method specified as the special result determiner.

*2 For transaction status information, refer to "Transaction Monitoring and Freeze Functionality".

*3 Interstage Java EE DAS service instances need not be restarted. Server instances must be restarted.

Property

Properties that can be referenced/set are as follows (only some properties are shown in the table below).

Properties that can be specified as "Additional properties"

Item name	Property name
Disabling of the transaction log	disable-distributed-transaction-logging
Transaction timeout set for XAResource	xaresource-txn-timeout

Item name	Property name
Transaction log output destination JDBC resource name	db-logging-resource
Use Last Agent Optimization	use-last-agent-optimization
Use of multiple non-XA resources in the transaction	multi-nonXA-only-supported
The takeover host name for the transaction	xa-servername

Properties that can be specified as "Additional properties"

Item name	Default value	Range	Explanation
Disabling of the transaction log	false	- true - false	If true is set for this property, the output of transaction logs is disabled. (*1) An improvement in performance can be expected when transaction logs are not output, however it will not be possible to launch a recovery after trouble. For this reason, the 'true' setting is not recommended for this item.
Transaction timeout set for XAResource	This will depend on the JDBC driver that is used, so check the JDBC driver specs.	0-2147483647 (Seconds) (This will depend on the JDBC driver that is used, so check the JDBC driver specs.)	The value specified in this property is the timeout value (seconds) that uses the setTransactionTimeout method for XAResource that is used in the global transaction.
Transaction log output destination JDBC resource name	none	Strings	Specify the JDBC Resource JNDI Name (Example: jdbc/TxLog) for this property. The transaction log is stored in the target database of the JDBC resource that was specified. (*2).
Use Last Agent Optimization	true	- true - false	If true is set for this property, only one non-XA resource can be used when more than one resource is used during transaction.
Use of multiple non-XA resources in the transaction	false	- true - false	If true is set for this property, multiple non-XA resources in the transaction can be accessed.
The takeover host name for the transaction	none	Strings	For operations using global transactions on the cluster system, set the takeover host name. By setting the takeover host name, a transaction can be handed to the standby node from the active node. For details on the cluster service and "the takeover host name", refer to " 8.3.4 Java EE Configuration ".

*1 If the output of transaction logs is disabled, also disable the definition used in the restart.

*2 The method to store transaction logs in the database is not supported in this version.

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	2.15 Transaction Control

Contents	Reference destination
Tuning method	Transaction Service Tuning
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the configs.config.transaction-service

7.8.14 Monitoring Service Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Monitor Logging	false	- true - false	Specify whether to enable or disable the monitor logging function.	No
Collection Interval	10	1-60 (Minutes)	Specify the time interval for log collection. If the collection interval is changed during logging, the next log will be output at the point that the new interval time is reached.	No
Thread pool	OFF	- LOW - HIGH - OFF	To monitor thread pools, the monitoring level of this option is set as "LOW" or "HIGH".	No
ORB (IIOP connections)	OFF	- LOW - HIGH - OFF	To monitor the system ORB, the monitoring level of this option is set as "LOW" or "HIGH".	No
EJB container	OFF	- LOW - HIGH - OFF	To monitor deployed EJB components, EJB pools, and EJB caches, the monitoring level of this option is set as "LOW" or "HIGH". To monitor the EJB business method as well, set this method to "HIGH".	No
Web container	OFF	- LOW - HIGH - OFF	To monitor deployed servlets, the monitoring level of this option is set as "LOW" or "HIGH".	No
Transaction service	OFF	- LOW - HIGH - OFF	To monitor transaction sub systems, the monitoring level of this option is set as "LOW" or "HIGH".	No
HTTP service	OFF	- LOW - HIGH - OFF	To monitor HTTP listeners and virtual servers, the monitoring level of this option is set as "LOW" or "HIGH".	No
JDBC connection pool	OFF	- LOW - HIGH - OFF	To monitor all JDBC connection pools, the monitoring level of this option is set as "LOW" or "HIGH".	No

Item name	Default value	Range	Explanation	Restart required
Connector connection pool	OFF	- LOW - HIGH - OFF	To monitor the JMS service, the monitoring level of this option is set as "LOW" or "HIGH". The value defined for this item is shared by the monitor level of the connector service. If either value is changed, it will affect the value defined for the other item. This item is displayed as "JMS/Connector Service" in the Interstage Java EE Admin Console.	No
Connector service	OFF	- LOW - HIGH - OFF	To monitor the JMS service, the monitoring level of this option is set as "LOW" or "HIGH". The value defined for this item is shared by the monitor level of the connector service. If either value is changed, it will affect the value defined for the other item. This item is displayed as "JMS/Connector Service" in the Interstage Java EE Admin Console.	No
JMS service	OFF	- LOW - HIGH - OFF	To monitor the JMS service, the monitoring level of this option is set as "LOW" or "HIGH". The value defined for this item is shared by the monitor level of the connector service. If either value is changed, it will affect the value defined for the other item. This item is displayed as "JMS/Connector Service" in the Interstage Java EE Admin Console.	No
JVM	OFF	- LOW - HIGH - OFF	To monitor the Java virtual machine, the monitoring level of this option is set as "LOW" or "HIGH". Note that the monitor logging Java VM performance information will still be collected regardless of the value set for this item.	No
Additional property				
ssqc-service	false	- true - false	Specify whether to enable/disable transaction breakdown analysis. If set to "true", case-sensitivity is used to distinguish between additional property names. If set to "false", case-sensitivity is not used to distinguish between additional property values. If a value other than "true" or "false" was specified, the default value ("false") is used.	No
ssqc-interval	1000	1-2147483647	Specify the transaction breakdown analysis measuring interval (Unit: number of times). Case-sensitivity is used to distinguish between additional property names. If a value outside the acceptable range was specified, the default value (1000) is used.	Yes

Note

If the monitor service definition item setting has been enabled, then Interstage Java EE DAS service memory will be used according to the number of server instances and applications that have already been defined.

If there is not enough memory in the Interstage Java EE DAS service, then refer to "Interstage Java EE DAS Service Heap Size and Address Space" and take action.

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	Performance Monitoring and Logging
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the configs.config.monitoring-service

7.8.15 Java VM Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Debug	false	- true - false	If 'true' is specified, the Java VM definition item "Debug options" will be enabled.	Yes
Debug options	"-Xdebug -Xrunjdwp:transport=dt_socket,server=y,suspend=n,address=9009"	String A string that starts with '-' can be specified as an option.	Specify the Java VM options which will be enabled when true is specified for the Java VM definition item "Debug". When multiple options are specified, put all values specified in the option in double quotation marks (") and a half-width space () between each option. (*1)	Yes
Javac options	"-g"	String A string that starts with '-' can be specified as an option.	When multiple options are specified, put all values specified in the option in double quotation marks (") and a half-width space () between each option. (*1)	Yes
Class path suffix		String	To insert the JAR file at the end of the server class path, the complete file path name is entered in this suffix field. When multiple paths are specified, use \${path.separator} or a semicolon (;) (Windows(R) or colon (:)) (Solaris/Linux) to separate them. (*2)	Yes
Native library path suffix		String	Entries that are added are specified at the end of the native library path. The native library path concatenates the native shared library relative path, standard JRE native library path, environment variable of the shell that is used to start the Interstage Java EE Node Agent service (in Solaris/Linux, LD_LIBRARY_PATH), and native library path suffix. When multiple paths are specified, use \${path.separator} or a semicolon (;) (Windows(R) or colon (:)) (Solaris/Linux) to separate them. (*3) To add a native library path, change either this item or the PATH environment variable (in Solaris/Linux, this is LD_LIBRARY_PATH) of the shell that starts the Interstage Java EE Node Agent service.	Yes

Item name	Default value	Range	Explanation	Restart required
			<p>The value specified for this item will be used as the java.library.path system property when the server instance starts. Depending on the native module used, however, the server instance might not run when only the path is defined for java.library.path. In this case, specify this value in the PATH (LD_LIBRARY_PATH) used for when the Interstage Java EE Node Agent service starts.</p> <p>For details on the Interstage Java EE Node Agent service environment variables, refer to "Interstage Java EE Node Agent Service Operations" > "Environment Variable Settings".</p>	
JVM options		<p>String between 1 and 4096 characters.</p> <p>A string starting with '-' can be specified.</p>	<p>When multiple options are specified, separate each option using a comma (.). (*4)</p> <p>The default configuration (default-config) JVM options should not be added, deleted, or modified. If IJServer cluster or Interstage Java EE DAS service JVM options have been defined, they should not be deleted either. Modify the values which have been added or predefined.(*5)</p>	Yes
Additional property			Cannot be used in this version.	
Profiler name		<ul style="list-style-type: none"> - Alphanumeric, or special characters ('-', '_', ':', '/', ';', '#') - Only an alphanumeric character or '-' can be specified as the first character. - A string between 1 and 512 characters 	This is the Profiler name.	
Class path		String between 1 and 4096 characters	Specify the Profiler class path.	Yes
Native library path		String between 1 and 4096 characters	Specify the Profiler native library path.	Yes
Profiler configuration status	true	<ul style="list-style-type: none"> - true - false 	Enable or disable the Profiler configuration.	Yes
Profiler configuration JVM options		String between 1 and 4096 characters. A string which starts with a hyphen ("-") can be specified as an option.	<p>These are the Profiler configuration JVM options.</p> <p>To specify multiple options, separate each option with a comma (",").</p>	Yes
Profiler configuration additional properties			Cannot be used in this version.	

*1 Example: Specifying the command when multiple options are specified in the debug option

```
asadmin set testserver.java-config.debug-options="-Xdebug -Xrunjdpw:transport=dt_socket,server=y,suspend=n,address=9009"
```

*2 Example: Specifying multiple options in the classpath suffix

```
/opt/lib/jar1.jar${path.separator}/opt/lib/jar2.jar
```

*3 Example: Specifying multiple options in the native lib. path suffix

```
/opt/lib1${path.separator}/opt/lib2
```

*4 Example: Specifying the command when multiple options are specified in the JVM option

```
asadmin set testserver.java-config.jvm-options=-Xmx256m,-XX:MaxPermSize=128m
```

*5 Command that checks the default configuration (default-config) JVM options

```
asadmin get default-config.java-config.jvm-options
```

The JVM options defined in the default configuration (default-config) are as follows:

	JVM Option
1	-XX:MaxPermSize=192m
2	-Djavax.management.builder.initial=com.sun.enterprise.ee.admin.AppServerMBeanServerBuilder
3	-Dcom.sun.appserv.pluggable.features=com.sun.enterprise.ee.server.pluggable.EEPluggableFeatureImpl
4	-Djava.endorsed.dirs=\${com.sun.aas.installRoot}/lib/endorsed
5	-Djava.security.policy=\${com.sun.aas.instanceRoot}/config/server.policy
6	-Djava.security.auth.login.config=\${com.sun.aas.instanceRoot}/config/login.conf
7	-Dsun.rmi.dgc.server.gcInterval=3600000
8	-Dsun.rmi.dgc.client.gcInterval=3600000
9	<div style="display: flex; justify-content: space-between; align-items: center;"> Windows32/64 Solaris32 Linux32/64 </div> -Xmx256m <div style="display: flex; justify-content: space-between; align-items: center;"> Solaris64 </div> -Xmx512m
10	-Djava.ext.dirs=\${com.sun.aas.javaRoot}/lib/ext\${path.separator}\${com.sun.aas.javaRoot}/jre/lib/ext \${path.separator}\${com.sun.aas.instanceRoot}/lib/ext\${path.separator}\${com.sun.aas.derbyRoot}/lib \${path.separator}\${com.sun.aas.installRoot}/lib/jdbcdrivers
11	-Djdbc.drivers=org.apache.derby.jdbc.ClientDriver
12	-Dcom.sun.enterprise.config.config_environment_factory_class=com.sun.enterprise.config.serverbeans.AppserverConfigEnvironmentFactory
13	-Dcom.sun.enterprise.taglibs=appserv-jstl.jar,jsf-impl.jar
14	-Dcom.sun.enterprise.taglisteners=jsf-impl.jar
15	-Djavax.net.ssl.keyStore=\${com.sun.aas.instanceRoot}/config/keystore.jks
16	-Djavax.net.ssl.trustStore=\${com.sun.aas.instanceRoot}/config/cacerts.jks

The JVM options defined in the configuration immediately after the Interstage Java EE DAS service is installed (server-config) are as follows:

	JVM Option
1	-XX:MaxPermSize=192m
2	-Djavax.management.builder.initial=com.sun.enterprise.ee.admin.AppServerMBeanServerBuilder
3	-Dcom.sun.appserv.pluggable.features=com.sun.enterprise.ee.server.pluggable. EEPluggableFeatureImpl
4	-Djava.endorsed.dirs=\${com.sun.aas.installRoot}/lib/endorsed
5	-Djava.security.policy=\${com.sun.aas.instanceRoot}/config/server.policy
6	-Djava.security.auth.login.config=\${com.sun.aas.instanceRoot}/config/login.conf
7	-Dsun.rmi.dgc.server.gcInterval=3600000
8	-Dsun.rmi.dgc.client.gcInterval=3600000
9	Windows32/64 Solaris32 Linux32/64 -Xmx512m Solaris64 -Xmx768m
10	-Djava.ext.dirs=\${com.sun.aas.javaRoot}/lib/ext\${path.separator}\${com.sun.aas.javaRoot}/jre/lib/ext \${path.separator}\${com.sun.aas.instanceRoot}/lib/ext\${path.separator}\${com.sun.aas.derbyRoot}/lib \${path.separator}\${com.sun.aas.installRoot}/lib/jdbcdrivers
11	-Djdbc.drivers=org.apache.derby.jdbc.ClientDriver
12	-Dcom.sun.enterprise.config.config_environment_factory_class=com.sun.enterprise.config.serverbeans. AppserverConfigEnvironmentFactory
13	-Dcom.sun.enterprise.taglibs=appserv-jstl.jar,jsf-impl.jar
14	-Dcom.sun.enterprise.taglisteners=jsf-impl.jar
15	-Djavax.net.ssl.keyStore=\${com.sun.aas.instanceRoot}/config/keystore.jks
16	-Djavax.net.ssl.trustStore=\${com.sun.aas.instanceRoot}/config/cacerts.jks
17	-Dcom.sun.logging.ee.enterprise.system.das.trace=true
18	-Dcom.sun.logging.ee.enterprise.system.das.trace.filename=jmxoperation.log
19	-Dcom.sun.logging.ee.enterprise.system.das.trace.count=5

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the configs.config.java-config

7.8.16 Thread Pool Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Thread pool ID		<ul style="list-style-type: none"> - Alphanumerics or special characters ('-', '_', ':', '/', ';). - Only alphanumerics or '_' can be specified as the start character. 		
Minimum pool size	0	0-2147483647 (Maximum pool size or less)		Yes
Maximum pool size	200	1-2147483647 (Minimum pool size or more)		Yes
Idle Timeout	120	1-2147483647		Yes

*1 This column indicates whether or not the IJServer cluster needs to be re-started.

Yes: Re-start is required.

No: Re-start is not required.

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	Thread Pooling
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the configs.config.thread-pools

7.8.17 Group Management Service Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Maximum protocol try	3	1-2147483647	The number of times the retry heartbeat signal is sent until the error is recognized is specified.	Yes
Protocol timeout	2000	1000-120000 (Milliseconds)	The time interval for sending the heartbeat signal is specified.	Yes
Verified timeout	1500	1500-120000 (Milliseconds)	The wait time until a ping request is sent to the server instance that recognized the error is specified. If as a result of the sending of the ping request there is the instance is assumed to have stopped.	Yes
Maximum interval			Cannot be used in this version.	Yes

Item name	Default value	Range	Explanation	Restart required
Minimum interval			Cannot be used in this version.	Yes
Ping timeout	2000	1000-120000 (Milliseconds)	Specify the time that the group management service waits for the detection of a server instance in the IJServer cluster.	Yes
Additional property			Cannot be used in this version.	

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	2.22 Group Management Service
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the configs.config.group-management-service

7.8.18 System Property Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
System property			The system property that is set in the IJServer cluster or server instance is specified.	

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand create-system-properties subcommand delete-system-property subcommand list-system-properties subcommand
Name of definition item in asadmin	Definition Items of the configs.config.system-property

7.8.19 Process Control Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Environment variable (*1)			<p>The environment variable that is used to run the application is specified using the following format:</p> <p>"environment variable=value"</p> <p>When multiple environment variables are specified, separate each environment variable using a comma (.). (*2)</p> <p>The "PATH" and "LD_LIBRARY_PATH" environment variables cannot be specified, however.</p> <p>The system environment variable for when the Interstage Java EE Node Agent service starts up and the environment variable that was specified in this definition item are both enabled.</p> <p>To change the "PATH" environment variable, specify the system environment variable that is used on the startup of the Interstage Java EE Node Agent service. For details, refer to "Interstage Java EE Node Agent Service Operations", "4.4.3 Environment Variable Settings" in the "Java EE Application Operation" chapter of the Java EE Operator's Guide.</p> <p>To change the "LD_LIBRARY_PATH" environment variable, set the native library path suffix. For details, refer to "Operating Environment-related Definition Items", "7.8.15 Java VM Definition Items" in the "List of Definition Items" chapter of the Java EE Operator's Guide.</p>	Yes
Control when there is insufficient Java heap/ Permanent generation space (*1)	true		<p>The Java VM process control is selected from the following when the Java heap or Permanent generation space is insufficient.</p> <ul style="list-style-type: none"> - true The process is restarted - false java.lang.OutOfMemoryError is returned to the application 	Yes
Maximum application processing time (*1)	480	0-86400 (Seconds)	The maximum application processing time is specified. (*3)	Yes
Behavior when the maximum application processing time is exceeded	false		<p>Select one of the following as the behavior when the maximum application processing time was exceeded:</p> <ul style="list-style-type: none"> - true The process is stopped by force. If an application is running, it will be restarted automatically. - false A WARNING message will be output. 	Yes
IIServer cluster startup wait time (*1)	600	0-65535 (Seconds)	The monitoring time until the Java VM process startup is complete is specified. If 0 is specified, process startup wait time monitoring is not performed.	Yes
IIServer cluster stop wait time (*1)	180	0-65535 (Seconds)	The monitoring time until forcible stop of the Java VM process is complete is specified. If 0 is specified, time monitoring until forcible stop is complete is not performed. (*4)	Yes

Item name	Default value	Range	Explanation	Restart required
Current directory (*1)	[Java EE common directory]/nodeagents/ijna		Directory which the current directory is aligned with. Specify an absolute path that can be created. The current directory is created in the following format: [dir]/\${server instance name}/current/latest The directory is not checked beforehand - if an invalid directory is specified, OM1033 or NAGT0008 will be output and the startup will fail. If a message was not output to the server log of the server instance, check the server log of the Interstage Java EE Node Agent service.	Yes
Number of current directory generations that are backed up (*1)	1	0-5	The number of current directory backup generations is specified. If 0 is specified, the current directory is not backed up.	Yes

*1 This item cannot be used in the Interstage Java EE DAS service.

Specify the system environment variable that is used on the startup of the Interstage Java EE DAS service. For details, refer to "Interstage Java EE DAS Service Operations", "4.3.3 Environment Variable Settings" in the "Java EE Application Operation" chapter of the Java EE Operator's Guide.

*2 Example: Specifying the command when multiple environment variables are specified in the environment variable:

```
asadmin set testserver.ijserver-control.environment-variable="TestEnv1=test1,TestEnv2=test2"
```

*3 To make requests to web application static resources monitoring targets, set the following Java VM option:

```
Dcom.fujitsu.interstage.javaee.webtier.target.DefaultServlet=true
```

For details on the Java VM option settings, refer to the asadmin command create-jvm-options subcommand:

*4 The behavior when the monitoring time is exceeded is as follows:

Normal stop

1. The first full thread dump is output to the Java VM log.
2. 10 seconds after 1., a second full thread dump is output to the Java VM log.
3. 10 seconds after 2., the ISJEE_OM1001 message is output to the event log/system log.
4. Stop by force is performed.
5. If there is a hang-up even after the stop by force in 4., after 180 seconds the process is collected forcibly (kill).

Stop by force

1. The first full thread dump is output to the Java VM log.
2. 10 seconds after 1., a second full thread dump is output to the Java VM log.
3. 10 seconds after 2., the ISJEE_OM1001 message is output to the event log/system log.
4. The process is collected forcibly (kill).

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	2.4 IJServer Cluster
Tuning method	IJServer Cluster Tuning
Commands	The following subcommands of asadmin:

Contents	Reference destination
	get subcommand set subcommand list subcommand create-cluster subcommand delete-cluster subcommand list-clusters subcommand
Name of definition item in asadmin	Definition Items of the configs.config.ijserver-control

7.8.20 Availability Service Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
Availability Service	false	- true - false	This property can only be used with session recovery. When using session recovery, enable the availability service.	Yes
Web Container Availability	false	- true - false	This property can only be used with session recovery. When using session recovery, enable the web container availability.	Yes

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	"4.10.1 Overview of the Session Recovery Settings"
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand
Name of definition item in asadmin	Definition items of the configs.config.availability-service.

7.9 System Property Definition Items

Definition Items

Item name	Default value	Range	Explanation	Restart required
System property			A system property that is enabled in all IJServer clusters and server instances is specified.	Yes

Related Information

For a detailed explanation and related content, refer to the following:

Contents	Reference destination
Functionality explanation	
Tuning method	
Commands	The following subcommands of asadmin: get subcommand set subcommand list subcommand
Name of definition item in asadmin	Definition Items of the system-property

Chapter 8 Running High Reliability Systems

This chapter explains how to run high reliability systems.

This function can only be used in Enterprise Edition.

8.1 Providing a High Reliability Environment

The high reliability system entails having a standby server with the same environment as the operation server for transactions, so that if a fault occurs on the latter, the former can take over the transactions. A robust system can be implemented by building of a high reliability system.



Note

- This function can only be used in Enterprise Edition.
- Node name takeover (the PRIMECLUSTER function) cannot be used.

Characteristics

High reliability for the entire system can be put in place for when an abnormality occurs in the server machine. A cluster system environment will be required, however, so equipment costs will be greater than normal.

Transaction Recovery Time

If the cluster service function is not used, then transaction recovery generally takes 2-3 hours. If the cluster service function is used, then transaction recovery takes the following times:

Windows32/64

Approximately 2-5 minutes

Solaris32/64

Approximately 10-15 minutes (instrumentation required)

Linux32/64

Approximately 10-15 minutes (instrumentation required)

The transaction recovery time will depend on the content set for the cluster service function. For this reason, the actual cluster should be used for instrumentation.

Operation

A cluster system is required to use the cluster service function. A cluster system is one that monitors its nodes and provides a mechanism for the takeover of one node by another upon an abnormality. The cluster service function builds high reliability systems using the cluster system function.

Required Software

The following software is required to use the cluster service function:

- A cluster system and its required components.

- A DBMS that supports the cluster system.

8.2 Operation Modes

This section explains the operation standby modes.

Cluster Products

In Java EE runtime environments, clusters run on the following cluster systems:

Windows32/64

Microsoft(R) Cluster Service (MSCS) used as the Microsoft Corporation cluster system, or Microsoft(R) Windows Server(R) 2008 failover clustering

Solaris32/64 **Linux32/64**

The Fujitsu cluster system (PRIMECLUSTER)

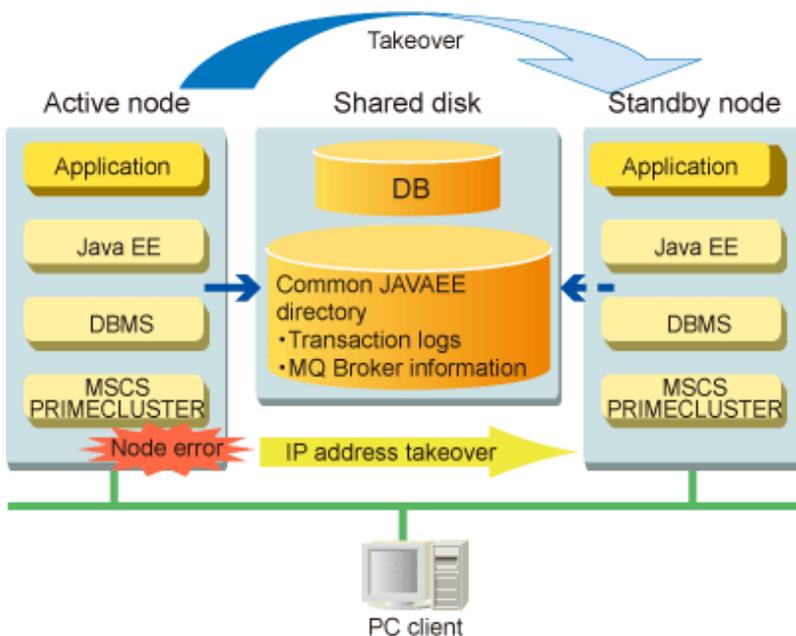
Knowledge of the above is required to use the cluster service function. For details, refer to the cluster system manual.

For Microsoft(R) Windows Server(R) 2008, refer to its manual, section "MSCS", "Failover Clustering".

Cluster Modes

1:1 active/standby modes are provided for both MSCS and PRIMECLUSTER (hot standby is not provided).

The diagram below illustrates the use of the cluster service function, used in combinations of MSCS (the Microsoft Corporation cluster product) or PRIMECLUSTER (the Fujitsu product) with DBMS as the cluster system.



When building a cluster service linkage environment, deployment of the Java EE common directory to a shared disk means that it will store the Java EE settings. Hence, changes to the Java EE settings on the active node will be reflected on the standby node settings.

Since the Java EE common directory is deployed to a shared disk, the transaction log, message broker log, accumulated messages, and so on, can be taken over by the standby node.

Switching Clusters

The Java EE cluster service linkage switches over from the active node to the standby node on the following occasions:

Windows32/64

When a hardware fault has occurred.

Solaris32/64 Linux32/64

When a hardware fault has occurred and the Interstage Java EE Node Agent service and message broker have failed.

8.3 Building a Cluster Service Linkage Environment

To run Java EE on a cluster system, basically the Java EE resources are deployed to each of the active node and standby node servers using the same resource configuration.

By deploying the Java EE common directory to a shared disk device, there is no need to configure Java EE on both the active node and the standby node - the configuration of the active node will be reflected on the standby node.

8.3.1 Installing Java EE

Install Java EE on the local disk of each node that comprises the cluster (active node, standby node).

So that the resource configuration of each node matches, install the product using the same path for each node of the cluster.

8.3.2 Disabling the Java EE Automatic Startup

After Java EE is installed, services that configure Java EE will start automatically when the machine starts up.

In a cluster environment, the cluster product will start Java EE when the machine starts up, so the Java EE automatic startup settings must be disabled. The procedure to disable the settings is explained below.

Windows32/64

1. Click [Control Panel] > [Administrative tool] > [Services] to open the Microsoft Management Console.
2. Check the services below:
 - Interstage Java EE DAS service
 - Interstage Java EE Node Agent service
 - Interstage Message Queue Broker
3. If [Status] is [Started], then stop it.
4. If [Startup Type] is [Automatic], then change it to [Manual].

Solaris32/64 Linux32/64

Remove the automatic start setting for the following services:

- Interstage Java EE DAS service
- Interstage Java EE Node Agent service
- Message broker

For details on how to remove the automatic start settings, refer to the following in the "Java EE Application Operation" chapter:

- Interstage Java EE DAS Service Operations, Automatic Startup/stop of a Service
- Interstage Java EE Node Agent Service Operations, Automatic Start/stop of a Service
- JMS Operation Methods, Starting/stopping the Broker

8.3.3 Cluster System Pre-configuration

Install and configure the cluster system and other products required by Java EE.

This section lists the points to remember about the configuration of the items below (for details on these procedures, refer to the cluster product manual):

- Shared disk configuration

- Network (IP address) configuration
- Database configuration



Notes on the node name

Node name takeover cannot be used.

For details on the cluster system, refer to its manual. For details on related products used in Interstage, refer to the product's manuals.

Shared Disk Configuration

For the takeover of Java EE settings information and transaction logs or message broker information between nodes, the Java EE common directory must be deployed to a shared disk. Configure the shared disk settings before starting the Java EE environment settings.

Network (IP Address) Configuration

In Java EE, IP address takeover is a pre-requisite, therefore the takeover network settings should also be configured in advance.

The IP address is also required when Java EE is configured, so register the takeover IP address in the cluster service (in PRIMECLUSTER, this is userApplication) so that it can be used until Java EE is configured.

Database Configuration

To use a database, create a database environment as well.

8.3.4 Java EE Configuration

This section explains how to build a Java EE environment on the cluster service.

In this procedure, the active node at the point when the work is started will be referred as "node 1", and the standby node will be referred as "node 2". In this explanation, it is also a pre-requisite that the network (IP address) and shared disk have been configured.

Starting the Cluster Service (userApplication)

The takeover IP address must be activated at the time of the Java EE setup.

For this reason, perform the procedure below:

1. Create the cluster service in which Java EE is to be set (in PRIMECLUSTER, this is userApplication).
2. Register the takeover IP address and the shared disk in the cluster service.
3. Start the cluster service.

Interstage Java EE Configuration

This section explains how to initialize the Interstage Java EE environment.

Java EE Common Directory

To deploy the Java EE common directory to a shared disk, configure the environment settings so that the Java EE common directory created in the active node is referenced from the standby node. The IJServer cluster transaction logs and message Broker log and resource will also be deployed to the shared disk.

This procedure is unnecessary when the Java EE common directory is not deployed to a shared disk.

1. If Java EE of the active node/standby node is running, then stop it:

```
> ijnastop  
> ijdastop
```

For details on the commands above, refer to "ijnastop" and "ijdasstop" in the "Java EE Operation Commands" chapter.

2. Initialize Java EE of the active node.

Specify the Java EE common directory on the shared disk, using the `ijinit` command `-commdir` option (for details, refer to "ijinit", "`-commdir`" option in the "Java EE Operation Commands" chapter).

Example

Setting the Java EE common directory on the shared disk

```
> ijinit -commdir G:\Interstage\F3FMisjee\var
```

3. Initialize Java EE of the standby node.

The Java EE common directory already exists on the shared disk, so specify the "`-existing`" option to initialize Java EE.

Example

Setting the Java EE common directory on the shared disk

```
> ijinit -commdir G:\Interstage\F3FMisjee\var -existing
```

Conversion of the IP Address and Host Name

The takeover IP address or host name must be set.

1. Edit `das.properties`.

Using a text editor, open `das.properties` and set `agent.das.host` to the takeover host name.

Windows32/64

```
[Java EE common directory]\nodeagents\ijna\agent\config\das.properties
```

Solaris32/64 Linux32/64

```
[Java EE common directory]/nodeagents/ijna/agent/config/das.properties
```

2. Edit `nodeagent.properties`.

Using a text editor, open `nodeagent.properties` and set `agent.client.host` to the takeover host name.

Windows32/64

```
[Java EE common directory]\nodeagents\ijna\agent\config\nodeagent.properties
```

Solaris32/64 Linux32/64

```
[Java EE common directory]/nodeagents/ijna/agent/config/nodeagent.properties
```

3. Edit `sun-acc.xml`.

If necessary, open `sun-acc.xml` using a text editor and set the `target-server` tag's name and address attributes to the takeover host name (for details on this file, refer to "Interstage ACC deployment descriptor (`sun-acc.xml`)" in the "Java EE Application Development" chapter).

Windows32/64

```
[Java EE common directory]\domains\interstage\config\sun-acc.xml
[Java EE common directory]\nodeagents\ijna\[serv inst name]\config\sun-acc.xml
```

Solaris32/64 Linux32/64

```
[Java EE common directory]/domains/interstage/config/sun-acc.xml
[Java EE common directory]/nodeagents/ijna/[serv inst name]/config/sun-acc.xml
```

4. Reissue the certificate.

Specify the host name to be inherited, and then reissue the certificate. For details on the procedure to reissue the certificate, refer to "Java EE Application Security Functionality", "SSL", "Keystore Settings" in the "Java EE Function Security" chapter.

5. Start the Interstage Java EE DAS service.

Use the `ijdasstart` command (for details, refer to "ijdasstart" in the "Java EE Operation Commands" chapter).

6. Set the takeover host name of the various items.

Using the `asadmin` command set subcommand (for details, refer to "asadmin" in the "Java EE Operation Commands" chapter), change the items below:

```
node-agent.ijna.jmx-connector.property.client-hostname
${clusterName_instanceName_configName}.admin-service.jmx-connector.system.property.client-
hostname
default-config.admin-service.jmx-connector.system.property.client-hostname
server-config.admin-service.jmx-connector.system.property.client-hostname
${clusterName_instanceName_configName}.jms-service.jms-host.default_JMS_host.host
default-config.jms-service.jms-host.default_JMS_host.host
server.jms-service.jms-host.default_JMS_host.host
${clusterName_instanceName_configName}.transaction-service.property.xa-servername
default-config.transaction-service.property.xa-servername
server.transaction-service.property.xa-servername
```

7. Change the IP address of the various items.

Using the `asadmin` command set subcommand, set the takeover IP address of the items below (unless the IP address set for `http-listener` is 0.0.0.0, in which case this step is not necessary):

```
${clusterName_instanceName_configName}.iiop-service.iiop-listener.${iiop-listener-id}.address
default-config.iiop-service.iiop-listener.${iiop-listener-id}.address
server.iiop-service.iiop-listener.${iiop-listener-id}.address
${clusterName_instanceName_configName}.http-service.http-listener.default.address
```

Service Configuration

Each Interstage Java EE function must be configured before being used.

For details on the configuration of non-Interstage Java EE functions/services, such as Interstage HTTP Server, refer to the "Interstage Environment Setup for the Server Function", "Using the Interstage HTTP Server" in the "Environment Setup Procedure for Cluster Service" chapter of the High Availability System Guide.

Servlet

If the Java EE common directory has been deployed to the shared disk, do not select the Web server to connect to in the `IJServer` cluster settings. If there is only one Web server on the machine that runs the `IJServer` cluster, that Web server is selected by default. In this case, unselect the Web server.

In this case, configure the Web server connector for each of the active and standby types. At this time, the same configuration must be set on each of the active and standby types.

IJServer Cluster

If the Java EE common directory has been deployed to the shared disk, configure the `IJServer` cluster and perform the Java EE application deployment in the active node (node 1).

Regardless of the Java EE common directory configuration, however, the `IJServer` cluster created must be configured to automatically start when the Interstage Java EE Node Agent service starts up (for details, refer to "[8.3.2 Disabling the Java EE Automatic Startup](#)").

Message Broker

If the Java EE common directory has been deployed to the shared disk, configure the JMS Resource settings and message Broker settings in the active node (node 1).

Using Session Recovery

1. Configure the Environment Definition

Run the session registry server as an IJServer cluster (in addition to an IJServer cluster that runs web applications for business use, prepare and run an IJServer cluster for Session Registry Server use).

Configure the IJServer cluster that runs the session registry server so that it can run on a cluster system.

2. Set the JVM Option

When running the session registry server on the cluster system, by enabling session serialization the session information can be inherited following the switch to the standby node.

To enable session serialization, define the following in the IJServer cluster JVM option:

```
-Dcom.fujitsu.interstage.jservlet.sessionrecovery.session.store=on
```

Additionally, specify the shared disk in the directory for storing the serialized file of the session.

Define the following in the IJServer cluster JVM option:

```
-D com.fujitsu.interstage.jservlet.sessionrecovery.serialize.file.path=$SWITCH
```

\$\$SWITCH: Directory on the shared disk



Note

The session recovery session registry server only supports 1:1 active/standby. It does not support mutual standby operations.

8.3.5 Cluster Service Configuration

This section explains how to configure the cluster service.

PRIMECLUSTER

Configure the settings relevant for the cluster system (in this case, userApplication):

- Change the Interstage state transition procedure according to the cluster system environment.
- Register the state transition procedure in PRIMECLUSTER.

Solaris32/64

Use the PRIMECLUSTER cluster operation settings view.

Linux32/64

Use the PRIMECLUSTER CUI.

- (Java EE only) Copy the Cmdline resources provided as samples, and change them if necessary.
- (Java EE only) Register the Cmdline resources in PRIMECLUSTER.

Modify the Cmdline Resource

Cmdline Resource Sample

Java EE uses the Cmdline resource to start/stop services and to perform switchover processing. Java EE provides sample Cmdline resources under /opt/FJSVisjee/etc/HA/PRIMECLUSTER, and users must modify these resources to suit their particular environments.

Java EE provides the following sample Cmdline resources:

Sample name	Control content
IJDAS_INTERSTAGE	Used for Interstage Java EE DAS service operations
IJNA_INTERSTAGE	Used for Interstage Java EE Node Agent service operations

Sample name	Control content
IJMQ_INTERSTAGE	Used for message broker operations

Status transition procedures are used for other Interstage component operations (for details, refer to "Setting Cluster Service" in the "Environment Setup Procedure for Cluster Service" chapter of the High Availability System Guide).

Method for Using Samples

To modify the Cmdline resources, follow the procedure below:

1. Copy Cmdline resource

Copy the Cmdline resources for the Interstage Java EE DAS service and the Interstage Java EE Node Agent service under any directory using the naming convention below.

Set a directory on the local disk to which the sample Cmdline resource is to be copied, and store the file in the same location at each node.

```
[userApplication name].[Cmdline resource name]
```

2. Modify contents of Cmdline resource

Modify the Cmdline resources to suit the operating environment and requirements of the system. For details on how to create or modify Cmdline resources, refer to the PRIMECLUSTER manual.

After copying the message broker Cmdline resource, edit the items below in the IJMQ_INTERSTAGE file to modify the resource (enclose the values in double quotes, and do not edit any items not listed below).

Item	Explanation
BROKER_PORT	The port number used by the broker process to provide the service. This value is also used as the broker instance name.
BROKER_OPT	List of broker options set for the broker process. Separate values with a space character.
VM_ARGS	List of VM options passed to JVM when the broker process starts. Separate values with a space character.

An example of settings is shown below.

```
# [User Definition]
#
#   Please modify the following lines, if necessary.

BROKER_PORT="7676"
BROKER_OPT="-Dimq.system.max_count=1 -Dimq.system.max_size=1k"
VM_ARGS="-Xmx256m"
```

Register the Cmdline Resources to PRIMECLUSTER

Cmdline Resource Registration

Specify the files copied as described in the previous section and use the "userApplication Configuration Wizard" to register the Cmdline resources.

Linux32/64

Use the "RMS Wizard" to register the Cmdline resource.

Register the resources in the following sequence (the StartCommand, StopCommands, and CheckCommands settings are explained below):

1. IJMQ_INTERSTAGE

Registration is not required if the Interstage JavaEE JMS function is not used.

StartCommand:

```
>> <Cmdline res copy des>/IJMQ_INTERSTAGE start
```

StopCommands:

```
>> <Cmdline res copy des>/IJMQ_INTERSTAGE stop
```

CheckCommands:

```
>> <Cmdline res copy des>/IJMQ_INTERSTAGE status
```

2. IJDAS_INTERSTAGE

StartCommand:

```
>> <Cmdline res copy des>/IJDAS_INTERSTAGE start
```

StopCommands;

```
>> <Cmdline res copy des>/IJDAS_INTERSTAGE stop
```

CheckCommands:

```
>> <Cmdline res copy des>/IJDAS_INTERSTAGE status
```

3. IJNA_INTERSTAGE

StartCommand:

```
>> <Cmdline res copy des>/IJNA_INTERSTAGE start
```

StopCommands:

```
>> <Cmdline res copy des>/IJNA_INTERSTAGE stop
```

CheckCommands:

```
>> <Cmdline res copy des>/IJNA_INTERSTAGE status
```

Cmdline Flag Settings

When registering a Cmdline resource, specify the resource attributes.

Solaris32/64

Use the "userApplication Configuration Wizard" to specify the resource attributes.

Linux32/64

Use the "RMS Wizard" to specify the resource attributes.

The following table shows the values to specify for each item:

Item name	Interstage Java EE DAS service	Interstage Java EE Node Agent service	Message broker
NULLDETECTOR	Yes	If cluster switchover occurs when the Interstage Java EE Node Agent service fails, specify 'No'. 'No' is recommended to prevent operation of the monitoring function for application operation processes when the Interstage Java EE Node Agent service fails.	No
ALLEXITCODES	No	No	No
LIEOFFLINE	No	No	No
CLUSTEREXCLUSIVE	No	Yes	Yes

Item name	Interstage Java EE DAS service	Interstage Java EE Node Agent service	Message broker
AUTORECOVER	No	No	No
MONITORONLY	No	No	No
STANDBYCAPABLE	No	No	No
REALTIME	No	No	No
TIMEOUT (*1)	Any	Any	Any

*1

TIMEOUT is used as the start and stop timeout (in seconds) of the Cmdline resource.

Estimate and set appropriate values based on "Cmdline resource TIMEOUT attributes" below.

Cmdline resource TIMEOUT attributes

Estimate the TIMEOUT attribute values that are set for each Cmdline resource as follows:

Cmdline resource	How to estimate TIMEOUT
IJMQ_INTERSTAGE	Check the durations of message broker startup and message broker shutdown (carried out by imqcmd shutdown bkr), and double the greater of these values.
IJDAS_INTERSTAGE	Check the durations of Interstage Java EE DAS Service startup and shutdown, and double the greater of these values.
IJNA_INTERSTAGE	Check the durations of Interstage Java EE DAS Node Agent Service startup and shutdown, and double the greater of these values.

MSCS

To configure MSCS, follow the procedure below:

1. Configure automatic startup settings for the IJServer cluster

To make the IJServer cluster start up automatically when the cluster is switched, it must start up automatically when the Interstage Java EE Node Agent service starts up. Enable "Automatic IJServer cluster startup" of Interstage Java EE Node Agent Service Definition Items. For details, refer to "Interstage Java EE Node Agent Service Definition Items" in the "List of Definition Items" chapter.

2. Register the Java EE resources for MSCS.

Register the resources in the table below for the service used using Cluster Administrator.

The database in the example below is Symfoware Server.

If a resource that will not be used is described in the "Dependency (dependency destination)" for the "Resource", then set it for the services that will not be used.

For example, if "(5) message Broker" will not be used, then the dependency destination for "(6) Interstage Java EE DAS services" will be "(4) Symfoware services".

Note

- The services below must be configured so that they do not restart automatically and failover does not occur after they are stopped. For [Advanced] of each Cluster Administrator service, select [Do not restart].
 - Interstage Java EE DAS Service
 - Interstage Java EE Node Agent Service

- To register message Broker in Windows Server(R) 2008, execute the command below after the resources are registered to delete the setup parameters:

```
cluster resource "Message Queue Broker 4.1" /priv StartupParameters=""
```

	Resource	Service name	Resource type	Dependency (dependency destination)	Remarks
(1)	IP addresses used in Interstage	-	IP address		(*3)
(2)	Network names used in Interstage	-	Network names		(*3)
(3)	Shared disks	-	Physical disks	(2) Network names used in Interstage	
(4)	Symfoware services	Symfoware RDB (*2)	Generic service	(3) Shared disks	
(5)	message Broker	Interstage Message Queue Broker	Generic service	(4) Symfoware services	(*1)
(6)	Interstage Java EE DAS services	Interstage Java EE DAS	Generic service	(5) message Broker	(*1)
(7)	Interstage Java EE Node Agent services	Interstage Java EE Node Agent	Generic service	(6) Interstage Java EE DAS services	(*1)
(8)	Interstage HTTP Server services	FJapache Interstage HTTP Server (Web server name)	Generic service	(7) Interstage Java EE Node Agent services	(*1)

*1

Do not select the [Use network name as computer name] check box.

*2

For details on the Symfoware Server product service names, refer to the Symfoware Server product manual.

*3

To use the Microsoft(R) Windows Server(R) 2008 failover clustering function, register "Client Access Point" as the resource instead of (1) and (2).

Additional items:

- Register all resources above in the group for Java EE.
- Specify a character string for the resource name.
- Specify the nodes that comprise the cluster system as the owner with execute privileges.
- When registering the generic service, specify the service name in the table.
- There is no need to specify other items.

8.3.6 Checking Cluster System Operation

To make sure that the cluster environment has been implemented correctly, refer to "8.8 About the Cluster System Test Method".

8.4 Removing the Cluster Service Linkage

This section explains how to remove the cluster service linkage.

8.4.1 Deleting the Cluster Service (userApplication)

Delete the cluster service in which Java EE is set (in PRIMECLUSTER, this is userApplication).

8.4.2 Clearing the Cluster System Configuration

Clear the cluster system configurations below:

- Shared disk device configuration
- Network (IP address) configuration
- Database environment configuration

There is no need to clear these configurations for cluster service linkage using a non-Java EE function.

8.4.3 Initializing the Interstage Java EE Environment

Reinitialize the standby node Interstage Java EE DAS service environment using the ijinit command (for details, refer to "ijinit" in the "Java EE Operation Commands" chapter).

There is no need to reinitialize the active node. Deployed applications or resources and configuration can still be used in the active node.

1. If Java EE is running on the standby node, then stop it:

```
> ijnastop  
> ijdastop
```

For details on the commands above, refer to "ijnastop" and "ijdastop" in the "Java EE Operation Commands" chapter.

2. Initialize Java EE of the standby node.

Use the ijinit command -commdir option (for details, refer to "ijinit", "-commdir" option in the "Java EE Operation Commands" chapter) without specifying the shared disk for the Java EE common directory, and without specifying the -existing option.

```
> ijinit -commdir G:\Interstage\F3FMisjee\var
```

8.5 Configuring the Application

This section explains how to configure the application.

8.5.1 Server Application Environments

In a server application environment, the application must be created using exactly the same configuration as both the active node and the standby node.

IJServer Cluster Configuration and Java EE Application Deployment

Configure the IJServer cluster and deploy the Java EE application only in the active node.

1. Stop the cluster service.
2. Start the active node Interstage Java EE DAS service.
3. Stop the active node IJServer cluster, using the Interstage Java EE Admin Console or the asadmin command (for details, refer to "asadmin" in the "Java EE Operation Commands" chapter).
4. Configure the IJServer cluster and deploy the Java EE application in the active node, using the Interstage Java EE Admin Console or the asadmin command.

5. Stop the active node Interstage Java EE DAS service.
6. Start the cluster service.

To use JDBC resources in a Java EE application, store the resources that are set when the Java EE environment is configured (such as JDBC data source) on the local disk of each node.

Databases Supported on an IJServer Cluster

The databases that can be used from a Java EE application and are supported on a cluster system are listed below:

- Oracle
- Symfoware
- Microsoft(R) SQL Server(TM)

8.5.2 Client Application Environments

When a switch is performed due to an active node system crash during client connection, the connection processing (request processing) will have 'error' or 'no-response' status.

If there was a switch, take action so that the client reconnects to the active node.

8.6 Operations

The operations on the cluster system follow the functions provided in the cluster product, and are explained in the sections below.

In the sections below, the table cells containing the value [Switch] and [Failover (normal)] describe instances in which the cluster switch is performed by the operator. [Failover (abnormal)] describe instances in which the cluster switch is automatically performed due to an abnormality.



Note

In a cluster environment, the Interstage Java EE Admin Console control takeover is not performed at the time of the switch/failover. You must log on to the Interstage Java EE Admin Console again after the active node switch.

PRIMECLUSTER

Operation	Active node status	Standby node status
Start	Stopped>Started	Stopped
Switch	Started>Stopped	Stopped>Started
Swap	Started>Stopped	Stopped>Started
Integrate	Started	Stopped
Stop	Started>Stopped	Stopped
Failover (abnormal)	Started>Stopped abnormally	Stopped>Started
Recovery after the failover	Stopped abnormally>Stopped	Started

MSCS

Operations for cluster systems	Active node status	Standby node status
Start	Stopped>Started	Stopped
Failover (normal)	Started>Stopped	Stopped>Started
Stop	Started>Stopped	Stopped>Stopped
Failover (abnormal)	Started>Stopped abnormally	Stopped>Started
Recovery after the failover	Stopped abnormally>Standby	Started

8.6.1 Start

When this operation is performed, Interstage is started in the active node.

Node	PRIMECLUSTER	MSCS
Active	Started	Started
Standby	Stopped	Stopped

8.6.2 Switch/Failover (Normal)

This operation stops the active node and switches the standby node to a new active one.

When this operation is performed, the operation status of Java EE on the active node is changed to 'Stopped' or 'Standby' (depending on the cluster product), and Java EE starts on the standby node.

Node	PRIMECLUSTER	MSCS
Active	Standby	Stopped
Standby (new active)	Started	Started

8.6.3 Swap

This operation swaps the active node with the standby one. This operation is not supported by MSCS.

When this operation is performed, the operation status of Java EE on the active node changes over to the standby node, and Java EE starts on the standby node.

Node	PRIMECLUSTER	MSCS
Active (new standby)	Standby	Not supported
Standby (new active)	Started	Not supported

8.6.4 Integrate

This operation starts a standby node with 'Stopped' status. This operation is not supported by MSCS.

When this operation is performed, the operation status of Java EE on the standby node changes to 'Standby', without the status on the active node changing.

Node	PRIMECLUSTER	MSCS
Active	Started	Not supported
Standby	Standby	Not supported

For details on the integration of a server in which an abnormality has occurred, refer to "[8.6.6 Failover \(Abnormal\)](#)".

8.6.5 Stop

When this operation is performed, the operation status of Java EE on the active node changes to 'Stopped'.

If the operation status of Java EE on the standby node is 'Standby', then stop it.

Node	PRIMECLUSTER	MSCS
Active	Stopped	Stopped
Standby	Stopped	Stopped

8.6.6 Failover (Abnormal)

If an abnormality occurs in the cluster, then the cluster product will perform failover (node switching) automatically.

When this operation is performed, the operation status of Java EE on the active node changes to 'Stopped', and Java EE that has 'Standby' status in the standby node is started by the cluster product.

For details on how to recover a server in which an abnormality has occurred, refer to "[8.6.7 Recovery After Failover](#)".

Node	PRIMECLUSTER	MSCS
Active	Stopped	Stopped
Standby	Started	Started

8.6.7 Recovery After Failover

If a cluster service failover occurred, then investigate the cause and take appropriate action.

After action has been taken, restart the node. For PRIMECLUSTER, perform the cluster integration and change the status to 'Standby'.

For details on how to determine the cause of error, refer to "[8.7 Troubleshooting](#)".

Node	PRIMECLUSTER	MSCS
Active (new standby)	Standby	Stopped
Standby (new active)	Started	Started

8.7 Troubleshooting

This section explains how to proceed when an abnormality (switch) occurs on the cluster service.

8.7.1 Troubleshooting Procedure

To investigate the cause of a cluster switch, follow the procedure below:

1. Check the abnormality detected by the cluster system.

If failover was performed after an abnormality in the Java EE Cmdline resource was detected, then skip to the next step. Otherwise, check the status transition procedure.

2. Check whether the Java EE Cmdline resource was corrected.

If it was, then check whether the problem occurred in the existing Java EE control or in the corrected part. If the problem occurred in the existing Java EE control, then skip to the next step. Otherwise, investigate the correction location.

3. Check the Java EE output message and investigate the cause.



To collect the data using the `iscollectinfo` command, use the command on both the new active and the new standby nodes (for details, refer to the "Maintenance Commands" chapter of the Reference Manual (Command Edition)).

Please note that the data collected on the new standby node will not include the resources under the Java EE common directory.

8.7.2 Standby Node Integration After a Switch

Processes on the server may remain active when the switch is performed due to the server abnormality. For this reason, perform the standby node integration after the resources are collected, by stopping and restarting the server machine.

If this is not done, then Java EE may fail to start. The server machine must be restarted before the node integration is performed.

8.8 About the Cluster System Test Method

Solaris32/64 Linux32/64

PRIMECLUSTER can perform cluster system switchover when the Interstage Java EE Node Agent service fails. The method to use to intentionally make the Interstage Java EE Node Agent service fail for test purposes is described below.

Checking Method

1. At the active node, identify the process ID of the Interstage Java EE Node Agent service.

The PID can be found in the following file:

```
[Java EE common directory]/nodeagents/ijna/[server inst name]/config/.__com_sun_appserv_pid
```

2. Kill the process with the "kill -9" command, as displayed below ("-9" must be specified):

```
# kill -9 2795
```

Chapter 9 Maintenance (Resource Backup/migration of Resources to Another Server)

Maintenance of the Java EE application operating environment is explained in this chapter.

9.1 Backing up and Restoring Resources

The procedures for backing up and restoring IJServer cluster resources are explained below.

9.1.1 IJServer Cluster Backup/restore Target Resources

The IJServer cluster backup/restore target files are shown below.

- Files under the Java EE common directory.
- The asadminenv.conf file.

Windows32/64

```
C:\Interstage\F3FMisjee\config\asadminenv.conf
```

Solaris32/64 Linux32/64

```
/opt/FJSVisjee/config/asadminenv.conf
```



Note

- The IJServer cluster log file is not backed up or restored.
- If resources stored in the disk directory used for backup are backed up (using file copy) on a shared disk or removable media in file system format, it may cause the file attributes to be changed. Back up the resources in archive format instead.

9.1.2 Backing up IJServer Cluster Resources

Before backing up IJServer cluster resources, stop the following services.

Stopping Services

For details about the various commands used to stop the services, refer to the "Java EE Operation Commands" chapter.

- IJServer cluster

Stop the IJServer cluster using the asadmin command stop-cluster subcommand or Interstage Java EE Admin Console.

- The Interstage Java EE Node Agent service

Windows32/64

Stop the Windows(R) "Interstage Java EE Node Agent" service.

Solaris32/64 Linux32/64

Stop the Interstage Java EE Node Agent service using the isstop command.

- The Interstage Java EE DAS service

Windows32/64

Stop the Windows(R) "Interstage Java EE DAS" service.

Solaris32/64 Linux32/64

Stop the Interstage Java EE DAS service using the ijdasstop command.

- **Message broker**

The message broker is stopped using the shutdown bkr sub-command of the imqcmd command.

- **Java DB**

The Java DB is stopped using the stop-database sub-command of the asadmin command.

Backup Procedure

The procedure to back up the IJServer cluster resources is explained below.

Backup Command

The IJServer cluster resources are backed up using the following command.

Windows32/64

```
C:\Interstage\F3FMisjee\bin\ijbackup.bat
```

Solaris32/64 Linux32/64

```
/opt/FJSVisjee/bin/ijbackup
```



Example

Windows32/64

In the following example, the backup destination path is X:\Backup.

Execute the ijbackup command to back up the IJServer cluster resources.

```
C:\Interstage\F3FMisjee\bin\ijbackup.bat -d X:\Backup
```

Solaris32/64 Linux32/64

In the following example, the backup destination path is /backup.

Execute the ijbackup command to back up the IJServer cluster resources.

```
/opt/FJSVisjee/bin/ijbackup -d /backup
```



Note

- Before backing up the IJServer cluster resources, back up the backup target service resources shown in the isprintbackupsrsc command. For details on the backup procedure, refer to "Backing Up and Restoring Resources" in the "Maintenance (Resource Backup)" chapter of the Operator's Guide.
- If IJServer cluster resources are deployed to a location that is not under the Java EE common directory, they will not be targets of backup using the ijbackup command. Back up these resources separately.

9.1.3 Restoring IJServer Cluster Resources

Before restoring IJServer cluster resources, a number of services must be stopped. Refer to "[Stopping Services](#)" above for information about stopping these services.

Restore Procedure

The procedure to restore the IJServer cluster resources is explained below.

1. Execute the restore Command

restore Command

Restore the IJServer cluster resources using the following command.

Windows32/64

```
C:\Interstage\F3FMisjee\bin\ijrestore.bat
```

Solaris32/64 Linux32/64

```
/opt/FJSVisjee/bin/ijrestore
```

Example

Windows32/64

In the following example, the backup destination path is X:\Backup.

Execute the ijrestore command to restore the IJServer cluster resources.

```
C:\Interstage\F3FMisjee\bin\ijrestore.bat -d X:\Backup
```

Solaris32/64 Linux32/64

In the following example, the backup destination path is /backup.

Execute the ijrestore command to restore the IJServer cluster resources.

```
/opt/FJSVisjee/bin/ijrestore -d /backup
```

Note

- Before restoring the IJServer cluster resources, restore the backup target service resources shown in the isprintbackupsrsc command.
- If there are IJServer cluster resources in the restore/import destination, they are deleted before restore/import is performed. For this reason, log files that are not backup targets are deleted after restore/import is performed.
- To restore Java EE resources using the ijrestore command, the status of the machine at backup and at restore must satisfy the following conditions.
 - The machine/system must be the same.
 - The system settings such as host name and IP address must not be modified.
 - The JDK version must be the same for the backup resources and the restore destination environment.

However, if the IJServer cluster resources that were run on JDK (not provided in this version) are migrated, Java EE will run on the JDK that was specified when Java EE was installed on the migration destination, or when the ijinit command was executed.

- If IJServer cluster resources are deployed to a location that is not under the Java EE common directory, they will not be targets of restore using the ijrestore command. Restore these resources separately, using the path that was used for the backup.

2. Tasks that Follow the Restoration of the IJServer Cluster Resources

Perform the following tasks after the IJServer cluster resources have been restored.

Configuration for Migration of Resources from V9

- Configure the Java EE operating environment

When resources are migrated from V9, it is recommended that you strengthen the encryption level of the service admin user password file that is managed by the Java EE operating environment.

- Configure the Interstage Java EE DAS service

When resources are migrated from V9, the Interstage Java EE Admin Console and the Interstage Java EE DAS Service must be configured before the Interstage Java EE DAS Service is started.

- Edit the policy file

When resources are migrated from V9, the policy file must be edited. Edit the following policy files:

Windows32/64

```
[Java EE common directory]\domains\interstage\config\server.policy
```

Solaris32/64 Linux32/64

```
[Java EE common directory]/domains/interstage/config/server.policy
```

Additionally, if the IJServer cluster policy file content has been changed from the default policy file content and then used, also execute the following procedure:

1. If the following full paths have been used for the IJServer cluster policy file, back up the file outside this directory. Execute steps b and c for files backed up after this.

Windows32/64

```
[Java EE common directory]\nodeagents\ijna\[server instance name]\config\server.policy
```

Solaris32/64 Linux32/64

```
[Java EE common directory]/nodeagents/ijna/[server instance name]/config/server.policy
```

2. Edit the IJServer cluster policy file.
3. If the policy file was backed up in step a above, use the Interstage Java EE Admin Console or asadmin command to configure the backed up policy file full path in the JVM option. For details on the configuration method, refer to the "Java EE Operation Commands" chapter. Start the Interstage Java EE DAS Service so that the JVM option can be configured.

Synchronize the Repository

For the Interstage Java EE Node Agent service and IJServer cluster, synchronize the repository in the import/restore target according to the procedure shown below.

1. Start the Interstage Java EE DAS service.

This is necessary to enable synchronization of the center repository and repository cache.

2. Start the Interstage Java EE Node Agent service.

This is necessary to enable synchronization of the center repository and repository cache.

3. Start the IJServer cluster.

This is necessary to enable synchronization of the center repository and server instance repository cache.

If the Interstage Java EE Node Agent service is not configured to automatically start the IJServer cluster, then manually start it.

This step is not necessary if an IJServer cluster has not been created.

Note

If the Interstage Java EE Node Agent service and IJServer cluster were started before startup of the Interstage Java EE DAS service was complete, then repository will not be synchronized, the messages below will be output to the server log and the startup will fail.

In Interstage Java EE Node Agent service server logs:

- ISJEE_SYNC001
- ISJEE_SYNC029

In IJServer cluster server logs:

- ISJEE_OM2501

- ISJEE_SERVER1103
- ISJEE_CORE5071
- ISJEE_SERVER1009
- ISJEE_SERVER1010

If startup of the Interstage Java EE DAS service completed, then the Interstage Java EE Node Agent service and IJServer cluster must be started before synchronizing the repository (for details on repository synchronization, refer to "[2.1.4 Repository Synchronization](#)" in the "Functionality Provided in the Java EE Application" chapter).

Delete the Serialized File

If the session registry server IJServer cluster was restored and session serialization was enabled, clear the serialized session information after the IJServer cluster was restored but before starting the session registry server.

9.2 Importing Resources

This section explains how to change the server machine host information (host name/IP address) and migrate resources to another server. The examples below explain how to migrate resources to another server, but they also apply to changing the server machine host information.

1. Exporting resources from the server machine
2. Changing the server machine host information
3. Importing resources to the server machine

9.2.1 Importing IJServer Cluster Resources

Before importing IJServer cluster resources, a number of services must be stopped. Refer to "[Stopping Services](#)" above for information about stopping these services.

Import Procedure

The procedure to import IJServer cluster resources is explained below.

1. Execute the restore Command

restore Commands

The following commands are used to restore the IJServer cluster resources.

Windows32/64

```
C:\Interstage\F3FMisjee\bin\ijrestore.bat
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisjee/bin/ijrestore
```

Method Used to Import Resources

If the machine host name or IP address in the import source and import destination machines is different, specify the import destination host name in the -h option and the path name of the IP address/host name configuration file in the -f option.

For details on the ijrestore command, refer to "ijrestore" in the "Backup Commands" chapter.



Example

Windows32/64

In the following example, the backup destination path is 'X:\Backup', the import destination host name is 'host', and the IP address/host name configuration file is 'X:\ipaddress.txt'.

```
C:\Interstage\F3FMisjee\bin\ijrestore.bat -d X:\Backup -h host -f X:\ipaddress.txt
```

Solaris32/64 **Linux32/64**

In the following example, the backup destination path is '/backup', the import destination host name is 'host', and the IP address/host name configuration file is 'ipaddress.txt'.

```
/opt/FJSVisjee/bin/ijrestore -d /backup -h host -f /ipaddress.txt
```

Note

- Before restoring the IJServer cluster resources, restore the backup target service resources shown in the `isprintbackupsrsc` command.
- To import Java EE resources using the `ijrestore` command, the following items must be the same on both the import source and import destination machines:
 - The Interstage installation directory and drive (Windows)
 - All resources that are not import targets (such as applications)
- If SSL is used in the IJServer cluster, also import the Interstage certificate environment resources.
- If there are IJServer cluster resources in the import destination, they are deleted after the IJServer cluster resources stored under the directory specified in the command are imported. For this reason, the log files for resources that are not export targets are deleted when the IJServer cluster resources stored under the directory specified in the command are imported.
- If IJServer cluster resources are deployed to a location that is not under the Java EE common directory, they will not be targets of import using the `ijrestore` command. Import these resources separately, using the path that was used for the export.
- If the IJServer cluster resources that were run on JDK (not provided in this version) are migrated, Java EE will run on the JDK that was specified when Java EE was installed on the migration destination, or when the `ijinit` command was executed.

2. Tasks After the Resources are Imported

After the resources are imported, perform the following tasks if necessary.

Configuration for Migration of Resources from V9

- Configure the Java EE operating environment

When resources are migrated from V9, it is recommended that you strengthen the encryption level of the service admin user password file that is managed by the Java EE operating environment.

- Configure the Interstage Java EE DAS service

When resources are migrated from V9, the Interstage Java EE Admin Console and the Interstage Java EE DAS Service must be configured before the Interstage Java EE DAS Service is started.

- Edit the policy file

When resources are migrated from V9, the policy file must be edited. Edit the following policy files:

Windows32/64

```
[Java EE common directory]\domains\interstage\config\server.policy
```

Solaris32/64 **Linux32/64**

```
[Java EE common directory]/domains/interstage/config/server.policy
```

Additionally, if the IJServer cluster policy file content has been changed from the default policy file content and then used, also execute the following procedure:

1. If the following full paths have been used for the IJServer cluster policy file, back up the file outside this directory. Execute steps b and c for files backed up after this.

Windows32/64

```
[Java EE common directory]\nodeagents\ijna\[server instance name]\config\server.policy
```

Solaris32/64 Linux32/64

```
[Java EE common directory]/nodeagents/ijna/[server instance name]/config/server.policy
```

2. Edit the IJServer cluster policy file.
3. If the policy file was backed up in step a, use the Interstage Java EE Admin Console or `asadmin` command to configure the backed up policy file full path in the JVM option. For details on the configuration method, refer to "Editing the Policy File" in the "Java EE Function Security" chapter. Start the Interstage Java EE DAS Service so that the JVM option can be configured.

Security Privileges Settings **Solaris32/64 Linux32/64**

If the backed up resources were imported from the environment in which the `issetsecuritymode` command was executed, or the `issetsecuritymode` command was executed in the import destination, re-execute the `issetsecuritymode` command.

If necessary, reset the service operator user using the `ijsetoperatorid` command.

Setting the IP Address/host Name of the Machine that is Connected to the IJServer Cluster

If the IP address/host name of the machine (such as the DB server machine) that is connected to the IJServer cluster was changed, change the IJServer cluster environment settings according to the following procedure:

1. Start Interstage Java EE DAS service

Start Interstage Java EE DAS service using the `ijdasstart` command.

2. Set the IJServer cluster environment

The IJServer cluster environment settings are changed using the `asadmin` command or Interstage Java EE Admin Console.

Configuring the IP Address/Host Name of the Session Registry Server that will Connect to the IJServer Cluster

If session recovery was used and the session registry server IP address/host name was changed, execute the `asadmin` command to change the session registry client-side IJServer cluster environment configuration.



Example

```
asadmin set [IJServer cluster name].applications.lifecycle-  
module.SRS1.property.srsAddress=[post-change IP address/host name]
```

Resetting the Virtual Host that is Linked to the IJServer Cluster

If the IP address or host name of the virtual host is changed when Interstage HTTP Server is imported, reset the virtual host that is linked to the IJServer cluster according to the following procedure:

1. Start Interstage Java EE DAS service

Start Interstage Java EE DAS service using the `ijdasstart` command.

2. Reset the virtual host that is linked to the IJServer cluster

After the IJServer cluster and Web server virtual host link is broken, the Web server virtual host that is linked to the IJServer cluster is added using the following `asadmin` command subcommands:

- `asadmin delete-virtual-host-ref --target IJServer cluster name --webserver Web server name Virtual host before the change`

- `asadmin create-virtual-host-ref --target IJServer cluster name --webserver Web server name Virtual host after the change`



Example

```
asadmin delete-virtual-host-ref --target IJServer001 --webserver FJapache 192.168.1.1/  
virtualhost1
```

```
asadmin create-virtual-host-ref --target IJServer001 --webserver FJapache 192.168.1.2/  
virtualhost2
```

Reissuing Certificates

Since the certificate contains the host name, it will be necessary to reissue the certificate. For details on the procedure to reissue certificates, refer to "Java EE Application Security Functionality", "SSL", "Keystore Settings" in the "Java EE Function Security" chapter.

Repository Synchronization

For the Interstage Java EE Node Agent service and IJServer cluster, synchronize the repository in the import/restore target according to the procedure shown below.

1. Start the Interstage Java EE DAS service.

This is necessary to enable synchronization of the center repository and repository cache.

2. Start the Interstage Java EE Node Agent service.

This is necessary to enable synchronization of the center repository and repository cache.

3. Start the IJServer cluster.

This is necessary to enable synchronization of the center repository and server instance repository cache.

If the Interstage Java EE Node Agent service is not configured to automatically start the IJServer cluster, then manually start it.

This step is not necessary if an IJServer cluster has not been created.



If the Interstage Java EE Node Agent service and IJServer cluster were started before startup of the Interstage Java EE DAS service was complete, then repository will not be synchronized, the messages below will be output to the server log and the startup will fail.

In Interstage Java EE Node Agent service server logs:

- ISJEE_SYNC001
- ISJEE_SYNC029

In IJServer cluster server logs:

- ISJEE_OM2501
- ISJEE_SERVER1103
- ISJEE_CORE5071
- ISJEE_SERVER1009
- ISJEE_SERVER1010

If startup of the Interstage Java EE DAS service completed, then the Interstage Java EE Node Agent service [and IJServer cluster must be started before synchronizing the repository \(for details on repository synchronization, refer to "2.1.4 Repository Synchronization" in the "Functionality Provided in the Java EE Application" chapter\).](#)

Delete the Serialized File

If the session registry server IJServer cluster was imported and session serialization was enabled, clear the serialized session information after the IJServer cluster was imported but before starting session registry server.

Chapter 10 Java EE Operation Commands

This chapter explains the commands used for Java EE operation.

For the commands below, refer to the "J2EE Operation Commands" chapter of the Reference Manual (Command Edition).

- ijsdispatchcont
Dispatch requests at the web server connector.
- ijsprintdispatchcont
Displays the status of request distribution by the web server connector.
- svmondsstat
Displays the status of the IJServer cluster when monitoring web server connector faults.
- isj2eadmin - service subcommand
Web server connector definition operations.

Supported Commands

Command	Outline	Standard-J Edition	Enterprise Edition
asadmin	Integrated command for Java EE runtime environment.	Yes	Yes
applient	Starts the application client container and executes the Java EE application client.	Yes	Yes
capture-schema	Captures the database schema information (When CMP Entity Bean is used).	Yes	Yes
ijdasstart	Starts the Interstage Java EE DAS services.	Yes	Yes
ijdasstat	Displays the Interstage Java EE DAS service status.	Yes	Yes
ijdasstop	Stops the Interstage Java EE DAS service.	Yes	Yes
Ijinit	Initializes the Java EE operating environment.	Yes	Yes
ijsetoperatorid	Sets the service operator user.	Yes	Yes
imqbrokerd	Starts the message broker.	Yes	Yes
imqcmd	Manages the message broker.	Yes	Yes
imqsvcadmin	Registers and deletes the message broker.	Yes	Yes
imqusermgr	Manages the user information that can be connected to the message broker.	Yes	Yes
ijnastart	Starts the Interstage Java EE Node Agent service.	Yes	Yes
ijnastat	Shows the status of the Interstage Java EE Node Agent service.	Yes	Yes
ijnastop	Stops the Interstage Java EE Node Agent service.	Yes	Yes
ijwsimport	Creates necessary resources for the JAX-WS service from the WSDL file.	Yes	Yes
Jspc	Compiles the JSP files in the specified directory.	Yes	Yes

Yes: Supported

No: Not supported

Location of Commands

Platform	Command	Directory
Windows32/64	asadmin	C:\Interstage\F3FMisjee\bin
	appclient	
	capture-schema	
	ijdasstart	
	ijdasstat	
	ijdasstop	
	ijinit	
	imqbrokerd	C:\Interstage\F3FMisjee\imq\bin
	imqcmd	
	imqsvcadmin	
	imqusermgr	
	ijnastart	C:\Interstage\F3FMisjee\bin
	ijnastat	
	ijnastop	
	ijwsimport	
jspc		
Solaris32/64 Linux32/64	asadmin	/opt/FJSVisjee/bin
	appclient	
	capture-schema	
	ijdasstart	
	ijdasstat	
	ijdasstop	
	ijinit	
	ijsetoperatorid	/opt/FJSVisjee/imq/bin
	imqbrokerd	
	imqcmd	
	imqusermgr	
	ijnastart	/opt/FJSVisjee/bin
	ijnastat	
	ijnastop	
	ijwsimport	
jspc		

Method to indicate command usage

Symbols below are used to explain the command synopsis.

- Curly brackets { }

This indicates that one item must be selected and specified from multiple items described in the curly brackets.

- Square brackets []

This indicates that the items described in the square brackets can be omitted. Only one item can be selected if more than one item is described.

- Repeat symbol ...

This indicates that the item immediately before this symbol can be repeated any number of times.

- Option symbol |

This symbol separates multiple items to choose from.

10.1 asadmin

The asadmin command is the integrated command for the Java EE runtime environment. It is used to construct the Java EE runtime environment and perform operations after the system started.

This explains the following.

- [asadminenv.conf File](#)
- [Command Execution Privileges](#)
- [Login Authentication when the Command is Used](#)
- [Command Structure](#)
- [Subcommand](#)
- [Showing the Candidates for the Subcommand Name](#)
- [Usage](#)
- [Setting the Command Process JavaVM Option](#)
- [Multimode](#)
- [Remote Command Execution](#)
- [Encryption Communication](#)
- [Option](#)
- [Operand](#)
- [Specifying the Target](#)
- [Specifying the User and Password](#)
- [Using Escape Characters](#)
- [Specifying a Character String that Includes a Space](#)
- [Maximum Length of the Input Character String](#)

asadminenv.conf File

The asadmin command connects to the Interstage Java EE DAS service HTTP listener for operation management and executes processing.

The settings for connection to the HTTP listener for operation management are defined in the asadminenv.conf file shown below. This file must also be changed if the settings of the HTTP listener for operation management, or the realm for Java EE operating environment login authentication, are changed.

Windows32/64

C:\Interstage\F3FMisjee\config\asadminenv.conf

Solaris32/64 Linux32/64

/opt/FJSVisjee/config/asadminenv.conf

In Solaris/Linux, only the system administrator can change this file.

The asadminenv.conf file definition content is as follows:

Item	Description	Default	Value range	Remarks
AS_ADMIN_PORT	Default value for "Port Number" of the Interstage Java EE DAS service HTTP listener for operation management that is connected by the asadmin command.	12001	1-65535	The value specified during installation or when the ijinit command is executed will be reflected as the initial value. If "Port Number" of the Interstage Java EE DAS service HTTP listener for operation management was changed using an operation not mentioned above, update this operation if necessary.
AS_ADMIN_PROFILE	Internal parameter.	cluster	cluster	This must not be changed from cluster.
AS_ADMIN_SECURE	Default value for whether encryption communication is executed when the asadmin command connects with the Interstage Java EE DAS service HTTP listener for operation management.	true	- true - false	The value specified during installation or when the ijinit command is executed will be reflected as the initial value. If "Security" of the Interstage Java EE DAS service HTTP listener for operation management was changed using an operation not mentioned above, update this operation if necessary.
AS_ADMIN_REALM	Security realm used when the service process starts up and when the asadmin command connects to the HTTP listener for operation management.	os	- os - file - ldap	Update this together with the realm for Java EE operating environment login authentication.

An example of the asadminenv.conf file definition is shown below.



Example

```
AS_ADMIN_PORT=12001
AS_ADMIN_PROFILE=cluster
AS_ADMIN_SECURE=true
AS_ADMIN_REALM=os
```

For details on the HTTP listener for operation management settings and the realm for Java EE operating environment login authentication, refer to the following:

- ["5.1.5 Registering the Administrator User"](#)
- ["7.8.12 Security Definition Items"](#)
- ["7.8.3 HTTP Service Definition Items"](#)

Command Execution Privileges

Solaris32/64 **Linux32/64**

Only Interstage operator group users can execute this command.

For details on Interstage operator groups, refer to "Support for Operating Environment Roles".

Login Authentication when the Command is Used

Login authentication is required when this command is used.

For details on login authentication, refer to "Login Authentication for the asadmin Command".

Command Structure

The asadmin command consists of multiple subcommands. Each subcommand corresponds to each operation of the Java EE operation environment. The option that can be specified differs by each subcommand.

When the command is executed, the subcommand and the option/operand are specified as follows:

```
> asadmin subcommand option operand
```

Note

Java EE runtime environment operation is performed via the Interstage Java EE DAS service. Therefore, with the exception of some of the subcommands, the Interstage Java EE DAS service must be started when the asadmin command is executed.

Subcommand

The subcommands have a format in which the operation name and the target operation name are connected with a hyphen, as shown below.

```
asadmin create-cluster
```

create: operation name

cluster: Target operation

For details on the subcommands, refer to "[10.1.1 List of Subcommands of the asadmin Command](#)" and the explanation of each subcommand.

Showing the Candidates for the Subcommand Name

If the specified command name has an error, a subcommand list including the specified character string is shown in the error message. Therefore, it is possible to know the target command if the subcommand name is partially known.

```
Closest matching command(s):
  subcommand name1
  subcommand name2
  subcommand name3
asadmin: ERROR: ISJEE_CLI001 Invalid Command, <specified command>
```

Example

For instance, when searching for operations related to clusters, enter as follows:

```
> asadmin cluster
Closest matching command(s):
  create-cluster
  delete-cluster
  list-clusters
  start-cluster
  stop-cluster
asadmin: ERROR: ISJEE_CLI001 Invalid Command, cluster
```

Usage

If the specified option has an error, the method to use the command is shown using the following format.

```
Usage: command name option operand
```

Options and operands that can be omitted are enclosed in square brackets.

An example of indicating the Usage is described below.

```
Usage: create-cluster [--terse[=true|=false]] [--echo[=true|=false]] [--newinstances
instance_name1[:instance_name2]...] [--systemproperties name=value[:name=value]...] [--interactive[=true|
=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help]
[--config config_name] cluster_name
```

Setting the Command Process JavaVM Option

When the asadmin command is started, the Java application start command (the java command) is used internally, the same as for normal Java applications.

To specify an option (such as the -Xmx option) that can be specified in this Java application start command, specify the VMARGS environment variable. An example of how to specify this option is shown below.

```
VMARGS= -Xmx512m
```

Note

- Do not specify the -classpath option.
- If an illegal value is specified, as shown below, a java command error will occur. For details on how to specify the option, refer to the java command explanation. If a value that contains spaces is specified, the value must be enclosed in double quotation marks ("").

When an invalid option is specified

```
>set VMARGS=-option
> asadmin list --echo
Unrecognized option: -option
Could not create the Java virtual machine.
```

When illegal spaces are specified

```
>set VMARGS=option1 option2
> asadmin list --echo
Exception in thread "main" java.lang.NoClassDefFoundError: option1
```

Multimode

If the asadmin command is executed without specifying a subcommand, the command starts in multimode. By using multimode, a batch execution of multiple operations can easily be performed.

For details on multimode, refer to "[10.1.3.2 multimode Subcommands](#)".

Remote Command Execution

By specifying the connection target in the --host and --port options, it is possible to connect to the Interstage Java EE DAS service of the remote machine and execute operations.

The relationship between the specified --host option value and remote execution is shown below:

--host option value	Remote execution used
Default value (localhost)	No (*1)
Local loopback address (127.0.0.1)	No (*1)
Host name of own host	No (*1)
IP address of own host	Yes (*2)
All other values	Yes (*2)

*1 The command will be executed even if it is not possible to connect to the network.

*2 The command will fail if it is not possible to connect to the network.

Synopsis

```
>asadmin <subcommand> --host --port <port> <operand>
```

This subcommand refers to a remotely executed subcommand.

Options

Option name	Mnemonic name	Description
--host	-H	(*1)
--port	-p	(*1)

*1 For details, refer to "10.1.2 asadmin Command Common Options".

Example

Execute as follows:

```
>asadmin create-cluster --host 192.168.0.100 --port 12001 cluster001
Please enter the admin user name>admin
Please enter the admin password>
Command create-cluster executed successfully.
```

Encryption Communication

Encryption communication is supported when the asadmin command is executed remotely. Encryption communication will be used when the Interstage Java EE DAS service HTTP listener for operation management security attribute and the --secure option of the asadmin command are both enabled.

Encryption Communication Settings

By enabling the security attribute of the Interstage Java EE DAS service HTTP listener for operation management, the Interstage Java EE DAS service will be able to accept SSL connection requests. By enabling the --secure option, the SSL connection request can be issued when the command is executed remotely. For this reason, it will only be possible to execute encryption communication using SSL when both are enabled. The meanings for both when they are enabled or disabled are explained in the following table.

Interstage Java EE DAS service HTTP listener for operation management security settings	--secure option settings	Meaning
true	true	Communication with the Interstage Java EE DAS service is encrypted.
	false	Execution of the asadmin command failed.
false	true	Execution of the asadmin command failed.
	false	Communication with the Interstage Java EE DAS service is not encrypted.

Note: The values specified for "Use SSL encryption communication" at the time of the installation (If "Use" was selected, this will be true), and for the --ssl option when the ijinit command is executed, will be reflected in the security of the HTTP listener for operation management.

When the Interstage Java EE DAS service HTTP listener for operation management security attribute and the --secure option are both enabled, encryption communication will be used when the command is executed remotely, as shown in the following example:

Example

1. Enable the Interstage Java EE DAS service HTTP listener for operation management security attribute.

```
>asadmin set --host 10.167.157.90 --port 12001 server-config.http-service.http-listener.admin-listener.securityenabled=true
Please enter the admin user name>admin
Please enter the admin password>
server-config.http-service.http-listener.admin-listener.security-enabled=true
```

2. Restart the Interstage Java EE DAS service.

```
>ijdasstop
ijdasstop: INFO: ijdas10001: Interstage Java EE DAS service has stopped.

>ijdasstart
ijdasstart: INFO: ijdas10000: Interstage Java EE DAS service has started.
```

3. Enable the --secure option when the asadmin command is executed remotely.

```
>asadmin create-cluster --host 10.167.157.90 --port 12001 --secure=true cluster001
Please enter the admin user name>admin
Please enter the admin password>
Command create-cluster executed successfully.
```

Note: "10.167.157.90" is the remote connection target IP address.

Note: In examples 1 and 3, the operation is executed by connecting to the server from a machine which is different to the remote connection target server. In example 2, the operation is executed on the remote connection target server directly.

File which Saves the Server Certificate

The .asadmintruststore file is used in order to save the server certificate under the user directory. For management operations which use SSL-secured connections, security authentication is executed using this server certificate.

If the --secure option is enabled but the .asadmintruststore file does not exist, after the asadmin command is executed the following message is output:

```
Do you trust the above certificate [y/n] -->
```

1. When the user enters "y" in the Console, .asadmintruststore is created and the command execution succeeds.

Example

```
>asadmin create-cluster --secure=true cluster002
[
[
  Version: V3
  Subject: CN=xuleijie, OU=Sun GlassFish Enterprise Server, O=Sun
Microsystems,
L=Santa Clara, ST=California, C=US
  Signature Algorithm: MD5withRSA, OID = 1.2.840.113549.1.1.4
```

```

Key: Sun RSA public key, 1024 bits
modulus:
128282666785297763709232615016911382068540452571925164881484435807352
33678058674740174707596757135471005844826959035149947983831556701649379
029486723
75143625304518888455449483001123164720766586531811413926196807365750160
414054624
25776075383403099138593956478275754048419956477627853404427379080134384
258507937

public exponent: 65537
Validity: [From: Thu Feb 04 12:35:43 JST 2010,
          To: Sat Jan 11 12:35:43 JST 2110]
Issuer: CN=xuleijie, OU=Sun GlassFish Enterprise Server, O=Sun
Microsystems, L
=Santa Clara, ST=California, C=US
SerialNumber: [ 4b6a408f]

Certificate Extensions: 1
[1]: ObjectID: 2.5.29.14 Criticality=false
SubjectKeyIdentifier [
KeyIdentifier [
0000: 23 EF AE E5 48 D2 A7 B6 25 32 CD DC 04 13 5E 7F #...H...%2....^
0010: 0E B6 9B 53 ...S
]
]

]
Algorithm: [MD5withRSA]
Signature:
0000: 40 6A 1E 57 09 AE 74 2C 99 D2 D5 1C 23 C4 4F 50 @j.W..t,....#.OP
0010: 57 00 71 2F 35 8B B2 9F D6 9B 24 96 73 85 E2 CC W.q/5.....$.s...
0020: C3 62 8A EC DE 54 74 DA 0B CF 2F 96 C8 EE 79 83 .b...Tt.../...y.
0030: F0 11 DD 5C 34 54 A2 3B DA 6C 34 69 84 E7 6C 86 ...4T.;.l4i..l.
0040: 5C F7 F0 2C A3 0B 1F 9D 26 E8 EC 2C F6 8A 40 FE \.,....&....@.
0050: DC FC EB 84 42 F0 5E 87 E4 1C 59 E1 DE 48 97 9B ...B.^...Y..H..
0060: 55 CB 36 D6 30 62 C3 04 E2 11 8D ED 41 6C BA 5E U.6.0b.....Al.^
0070: 93 57 AF 6D D5 A9 7B F0 79 7F AA 90 38 CC 96 96 .W.m....y...8...

]
Do you trust the above certificate [y|n] -->y
Command create-cluster executed successfully.

```

2. When the user enters "n" in the Console, an error occurs and the command execution fails.

Example

```

>asadmin create-cluster --secure=true cluster003
[
[
Version: V3
Subject: CN=xuleijie, OU=Sun GlassFish Enterprise Server, O=Sun
Microsystems,
L=Santa Clara, ST=California, C=US
Signature Algorithm: MD5withRSA, OID = 1.2.840.113549.1.1.4

Key: Sun RSA public key, 1024 bits
modulus:
128282666785297763709232615016911382068540452571925164881484435807352
33678058674740174707596757135471005844826959035149947983831556701649379
029486723

```

```

75143625304518888455449483001123164720766586531811413926196807365750160
414054624
25776075383403099138593956478275754048419956477627853404427379080134384
258507937

public exponent: 65537
Validity: [From: Thu Feb 04 12:35:43 JST 2010,
          To: Sat Jan 11 12:35:43 JST 2110]
Issuer: CN=xuleijie, OU=Sun GlassFish Enterprise Server, O=Sun
Microsystems, L
=Santa Clara, ST=California, C=US
SerialNumber: [ 4b6a408f]

Certificate Extensions: 1
[1]: ObjectId: 2.5.29.14 Criticality=false
SubjectKeyIdentifier [
KeyIdentifier [
0000: 23 EF AE E5 48 D2 A7 B6 25 32 CD DC 04 13 5E 7F #...H...%2....^
0010: 0E B6 9B 53 ...S
]
]
]
Algorithm: [MD5withRSA]
Signature:
0000: 40 6A 1E 57 09 AE 74 2C 99 D2 D5 1C 23 C4 4F 50 @j.W..t,...#.OP
0010: 57 00 71 2F 35 8B B2 9F D6 9B 24 96 73 85 E2 CC W.q/5.....$.s...
0020: C3 62 8A EC DE 54 74 DA 0B CF 2F 96 C8 EE 79 83 .b...Tt.../...y.
0030: F0 11 DD 5C 34 54 A2 3B DA 6C 34 69 84 E7 6C 86 ...\\4T.;.l4i..l.
0040: 5C F7 F0 2C A3 0B 1F 9D 26 E8 EC 2C F6 8A 40 FE \\.....&.....@
0050: DC FC EB 84 42 F0 5E 87 E4 1C 59 E1 DE 48 97 9B ...B.^...Y..H..
0060: 55 CB 36 D6 30 62 C3 04 E2 11 8D ED 41 6C BA 5E U.6.0b.....Al.^
0070: 93 57 AF 6D D5 A9 7B F0 79 7F AA 90 38 CC 96 96 .W.m....y...8...

]
Do you trust the above certificate [y|n] -->n
asadmin: ERROR: ISJEE_OM2998: Error in Interstage Java EE DAS. ERROR=The
certificate chain from the server is not trusted
asadmin: ERROR: ISJEE_CLI137: Command create-cluster failed.

```



Option

Options of the asadmin command consist of two hyphens followed by a keyword, such as "--help".

Specifying the value

There are three types of options, and the method to specify the value is different. The following explains each type.

Option type	How to specify the value	Example of use
Option to specify a Boolean value	Specify by separating the option and the value with "=".	--echo=true
Option to specify a character string/numerical value	Specify by separating the option and value with a space or with "=". (*1)	--file foo.txt --interval=-1
Option with no specified value	-	--help

*1 When an option value that starts with a hyphen ('-') is specified, separate the option name and value using '='.

Omitting the value

In the case of some options with Boolean values, the value can be omitted. If only the option is specified, also omit "=". If the specified value is omitted, "true" is set as the default value.

Therefore, the following two inputs mean the same.

Example

```
> asadmin create-cluster --echo=true  
> asadmin create-cluster --echo
```

Some options allow the value to be omitted, but do require the "=" operator to be specified. In these cases, the option is set to its default value.

Therefore, the following two inputs mean the same.

Example

```
> asadmin update-web-server-connector-config --maxprocessors=600 --target IJServer001  
> asadmin update-web-server-connector-config --maxprocessors= --target IJServer001
```

Using the mnemonic name

Frequently used options can be specified using one-character mnemonics. Mnemonics are prefixed with a hyphen. An example of the use of a mnemonic is described below.

Example

```
> asadmin create-cluster -e=true
```

Multiple mnemonics can be specified consecutively. For instance, the following two inputs mean the same.

Example

```
asadmin create-cluster -e -t  
asadmin create-cluster -et
```

Specifying multiple options

If multiple options are specified simultaneously, they are separated with a space. An error will not occur even if the same option is specified more than once; the option specified last is used.

For instance, "--echo=true", specified last, is used in the following case.

Example

```
> asadmin create-cluster --echo=false --echo=true
```

Specifying an invalid option

If an invalid option is specified when the command is executed, the subcommand Usage and error message are displayed, and the command is terminated.

Example

```
Usage: start-cluster [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host  
host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help]
```

cluster_name
 CLI013: Option agae does not apply to start-cluster.

Operand

The operand is the character string that is specified at the end of the arguments of the command and is used to specify the target of the operation.

If the required operand is omitted, the Usage and error message are displayed, and the command is terminated.

Values that start with a hyphen ('-') cannot be specified for the operand. If you want to specify this type of value, update the definition using the Interstage Java EE Admin Console.



Example

Usage: start-cluster [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] cluster_name
 CLI020: Operand is required.

Specifying the Target

The values that can be specified when the operation target is specified for the --target option or operand of each subcommand are explained below:

Value	Executes operations for
IJServer cluster name	Prebuilt IJServer cluster.
Server instance name	Prebuilt server instance.
Setting name	Prebuilt setting.
domain	<p>Domain (Java EE operating environment).</p> <p>The behavior will depend on the subcommand specified (for details, refer to the explanation on each subcommand):</p> <ol style="list-style-type: none"> 1. Creating system properties. System properties created for domain will be valid in all IJServer clusters, server instances, and settings. 2. Creating resources. Resources not referenced from any IJServer cluster are created. 3. Displaying list. All resources created in the Java EE operating environment are displayed. 4. Creating applications. Applications not referenced from any IJServer cluster are created. 5. Creating lifecycle module definitions. Lifecycle module definitions not referenced from any IJServer cluster are created.
server	<p>Interstage Java EE DAS service.</p> <p>("server" is the Interstage Java EE DAS service instance name.)</p>

The value that can be specified will depend on the subcommand. For details on which value can be specified, refer to the explanation on each subcommand.

Specifying the User and Password

When the `asadmin` command is used, take one of the procedures to specify the user and password to be used for the Interstage Java EE DAS service authentication.

Enter when executing the command

The following queries may appear when the `asadmin` command is executed. Enter the user and the password respectively.



Example

```
> asadmin create-cluster IJServer001
Please enter the admin user name>admin
Please enter the admin password>
Command create-cluster executed successfully.
```

Specifying a password file

When the `--user` option and `--passwordfile` options are specified, the user and password do not need to be entered when the `asadmin` command is executed.

Examples of execution are shown below.



Example

```
> asadmin create-cluster --user admin --passwordfile password.txt IJServer001
Command create-cluster executed successfully.
```

The password file specified in the `--passwordfile` option uses `AS_ADMIN_PASSWORD`.

```
AS_ADMIN_PASSWORD=password
```

If the specified password file cannot be accessed, the command execution will fail. Refer to the error message to solve the problem.

Even if the `.asadminpass` file exists in the user home directory, when the `--passwordfile` option is specified then its content will have the higher priority.

For details on the `.asadminpass` file, refer to "[10.1.3.3 login Subcommand](#)".

For details on the `--user` option and `--passwordfile` option, refer to "[10.1.1 List of Subcommands of the asadmin Command](#)".



Note

```
Solaris32/64 Linux32/64
```

To protect the password described in the password file, the file's access permissions should be set to 600.

Using the login command

By using the `asadmin` command `login` subcommand, the login user and password entries of the Interstage Java EE DAS service can be omitted when the `asadmin` command is executed. For details, refer to "[10.1.3.3 login Subcommand](#)".

Separators

Multiple values can be specified in the `asadmin` command operand and options. When multiple values are specified, a separator must be inserted between them.

The separator character type is different depending for each operand and option, as described in the tables below.

The `set` subcommand

Operand/option	Separator
applications.j2ee-application.\${AppName}.libraries	Windows32/64 ; Solaris32/64 Linux32/64 :
\${clusterclusterName_instanceName}.applications.j2ee-application.\${AppName}.libraries	
applications.ejb-module.\${AppName}.libraries	
\${clusterclusterName_instanceName}.applications.ejb-module.\${AppName}.libraries	
applications.web-module.\${AppName}.libraries	" " (half-width space)
\${clusterclusterName_instanceName}.applications.web-module.\${AppName}.libraries	
\${clusterclusterName_instanceName_configName}.java-config.debug-options	,
\${clusterclusterName_instanceName_configName}.java-config.javac-options	
\${clusterclusterName_instanceName_configName}.java-config.jvm-options	
\${clusterclusterName_instanceName_configName}.java-config.profiler.jvm-options	
\${clusterclusterName_instanceName_configName}.ijserver-control.environment-variable	

Other

Subcommand	Operand/option	Separator
create-system-properties	Name	:
create-jvm-options	jvm_option_name	
delete-jvm-options	jvm_option_name	
create-lifecycle-module	--property	
rollback-transaction	transaction_id	
create-jdbc-connection-pool	--property	
create-jdbc-resource	--property	
create-jms-resource	--property	
create-jndi-resource	--property	
create-javamail-resource	--property	
create-custom-resource	--property	
create-connector-connection-pool	--property	
create-admin-object	--property	
create-resource-adapter-config	--property	
create-profiler	--property	,
create-connector-security-map	--principals	
	--usergroups	
update-connector-security-map	--addprincipals	
	--addusergroups	
	--removeprincipals	
	--removeusergroups	
create-file-user	--groups	:
update-file-user	--groups	

Using Escape Characters

If the following characters are used in the command option or the operand value, '\' must be specified as the escape character.

Note

Some characters cannot be specified in the get/set/list subcommand operand (definition item name). For details on the ones that can, refer to "10.1.4 Subcommands - Category: Referencing/Updating Definition Items" - "Characters that can be specified in the definition item name".

Character types	Description	Characters
Solaris/Linux meta-characters	Characters used as Solaris/Linux meta-characters.	;&() ><?*?[]~+-@!"'\\${ }^ (*1)
Java escape sequence	Characters used as escape character in Java.	\\, etc.
asadmin command separation character	Separation character of the asadmin command.	:
asadmin command special characters	Special character used as escape character with the following subcommands. <ul style="list-style-type: none"> - get - set - list - create-jvm-options - delete-jvm-options - create-lifecycle-module - create-jdbc-connection-pool 	.,-:=
Special character in multimode	Special character used as the escape character in multimode.	\\

*1 Depending on the type of shell being used, characters treated as Solaris/Linux meta-characters are different. The Bourne shell and C shell Solaris/Linux meta-characters are listed below. The meta-characters that require escaping are shown with a 'Y'.

	Bourne Shell	C Shell
;	Y	Y
&	Y	Y
(Y	Y
)	Y	Y
	Y	Y
>	Y	Y
<	Y	Y
*		Y
?		Y
[Y
]		
~		
+		-
-		-

	Bourne Shell	C Shell
@		-
!	Y	Y
"	Y	Y
'	Y	Y
\	Y	Y
^	Y	Y
\$	Y	Y
{	-	Y
}	-	
^	-	

- : Not considered a meta-character by the shell



Example

Examples of execution are shown below.

1. Solaris/Linux meta-character

If "Test\Escape\Character" is specified in the option value, the escape character is used as follows:

Windows32/64

Escaping of Solaris/Linux meta-characters is not required in Windows.

Solaris32/64 **Linux32/64**

```
asadmin create-jdbc-connection-pool --datasourceclassname org.apache.derby.jdbc.ClientDataSource
--restype javax.sql.DataSource --property
user=APP:password=APP:databaseName=samples:serverName=localhost:portNumber=1527 --
description Test\Escape\Character SamplePool
```

Note) If the set command is executed by specifying an external file or the multimode subcommand is used, escaping of Solaris/Linux meta-characters is not required.

2. Java escape sequence

If "c:\foo\bar" is specified in the option value, the escape character is used as follows:

Windows32/64

```
asadmin create-jvm-options --target testserver -Dlocation=c:\\foo\\bar
```

Solaris32/64 **Linux32/64**

```
asadmin create-jvm-options --target testserver -Dlocation=c:\\\\foo\\\\bar
```

3. Separation character of the asadmin command

This explains the case where the following name and value are specified in the property option.

```
user=scott:password=tiger:url=jdbc:oracle:thin:@//localhost:1521/sampledb
```

The escape character is used as follows:

Windows32/64

```
asadmin create-jdbc-connection-pool --datasourceclassname
oracle.jdbc.pool.OracleDataSource --restype javax.sql.DataSource --property
user=scott:password=tiger:url=jdbc\:oracle\:thin\:@//localhost\:1521/sampledb SamplePool
```

Solaris32/64 **Linux32/64**

```
asadmin create-jdbc-connection-pool --datasourceclassname
oracle.jdbc.pool.OracleDataSource --restype javax.sql.DataSource --property
user=scott:password=tiger:url=jdbc\\:oracle\\:thin\\:@//localhost\\:1521/sampledb SamplePool
```

4. When the asadmin command separation character, Solaris/Linux meta-characters and Java escape sequence are mixed.

Windows32/64

```
asadmin create-jvm-options --target testserver -e\:-Dlocation=c\:\\foo\\bar
```

Solaris32/64 **Linux32/64**

```
asadmin create-jvm-options --target testserver -e\\:-Dlocation=c\\:\\\\foo\\\\bar
```

In this case, four escape characters (\\\\) must be specified to express the original meaning of '\\'. The meaning of each '\\ is explained below.

First '\\: escaping of Solaris/Linux meta-character

Second '\\: escaping of Java escape sequence

Third '\\: escaping of Solaris/Linux meta-character

Fourth '\\: the original meaning of '\\

The first '\\ is the escape character for the second '\\ and the third '\\ is the escape character for the fourth '\\.

If Java escape sequence is specified for '\\, it is expressed as "\\\".

Since '\\ corresponds to a Solaris/Linux meta-character, if the above is specified with the asadmin command on Solaris/Linux, '\\ must be added as the escape character for each escape character.

5. Special characters of the asadmin command (set subcommand)

If "-Dcom.sun.enterprise.taglibs=appserv-jstl.jar.jsf-impl.jar" is specified in the option "jvm-options" value using the [set](#) subcommand, the escape character is used as follows:

Windows32/64

```
asadmin set testserver.java-config.jvm-options=-Dcom.sun.enterprise.taglibs=appserv-jstl.jar\,jsf-impl.jar
```

Solaris32/64 **Linux32/64**

```
asadmin set testserver.java-config.jvm-options=-Dcom.sun.enterprise.taglibs=appserv-jstl.jar\\,jsf-impl.jar
```

If -Dcom.sun.enterprise.taglibs=appserv-jstl.jar.jsf-impl.jar" is specified in the option "jvm-options" value using an external file, the escape character is used as follows:

```
testserver.java-config.jvm-options=-Dcom.sun.enterprise.taglibs=appserv-jstl.jar\,jsf-impl.jar
```

6. Special characters of the asadmin command (get/set/list subcommand)

If a character string including a full stop like "sample.name" is specified in the key name using the [get/set/list](#) subcommand, the escape character is used as follows:

Windows32/64

```
asadmin set testserver.property.sample\name=samplevalue
asadmin get testserver.property.sample\name
```

Solaris32/64 **Linux32/64**

```
asadmin set testserver.property.sample\\.name=samplevalue
asadmin get testserver.property.sample\\.name
```

7. Special characters of the asadmin command

If a character string with '-' at the beginning of the operand is specified and the character string is the same as a command option, '-' at the beginning must be escaped.

If for instance, -s, -o=value, --switch, --option=value, etc. are specified in the operand, the '-' at the beginning must be escaped.

The following explains the example of use.

If "-Xmx512m" or "-Dlocation=c:\foo\bar" is specified in the option value using the [create-jvm-options](#) and [delete-jvm-options](#), the escape character is used as follows:

Windows32/64

```
asadmin create-jvm-options --target testserver \-Dlocation=c:\foo\bar (*1)
asadmin delete-jvm-options --target testserver \-Dlocation=c:\foo\bar
asadmin create-jvm-options --target testserver \-Xmx512m (*2)
asadmin delete-jvm-options --target testserver \-Xmx512m
```

Solaris32/64 **Linux32/64**

```
asadmin create-jvm-options --target testserver \\-Dlocation=c:\\foo\\bar (*1)
asadmin delete-jvm-options --target testserver \\-Dlocation=c:\\foo\\bar
asadmin create-jvm-options --target testserver \\-Xmx512m (*2)
asadmin delete-jvm-options --target testserver \\-Xmx512m
```

*1 If the operand (Java VM option) of the "-xxxx=yyyy" (xxxx is an option, yyyy is the designated value) format is specified using the [create-jvm-options](#) subcommand, "-" portion of the option can be specified as follows without using the escape character.

Windows32/64

```
asadmin create-jvm-options --target testserver -Dlocation=c:\foo\bar
```

Solaris32/64 **Linux32/64**

```
asadmin create-jvm-options --target testserver -Dlocation=c:\\foo\\bar
```

*2 If the operand of the "-xxxx" (xxxx is an option) is specified using the [create-jvm-options](#) subcommand, unlike (*1), the "-" portion of the option must be specified as follows using the escape character.

8. Special characters of the asadmin command (create-lifecycle-module subcommand)

If "rmi="Server=acme1:7070":timeout=30" is specified in the option "property" value using the [create-lifecycle-module](#) subcommand, the escape character is used as follows:

Windows32/64

```
asadmin create-lifecycle-module --target testserver --classname "com.acme.CustomSetup" --classpath
"/export/customSetup" --loadorder 1 --property rmi="Server\=acme1\;7070":timeout=30 customSetup
```

Solaris32/64 **Linux32/64**

Perform the escape using one of the following methods.

Method to escape the asadmin special characters:

```
asadmin create-lifecycle-module --target testserver --classname "com.acme.CustomSetup" --classpath
"/export/customSetup" --loadorder 1 --property rmi="Server\=acme1\;7070":timeout=30 customSetup
```

Method to escape Solaris/Linux meta-characters:

```
asadmin create-lifecycle-module --target testserver --classname "com.acme.CustomSetup" --classpath
"/export/customSetup" --loadorder 1 --property rmi="\Server=acme1:7070":timeout=30 customSetup
```

9. Special characters of the asadmin command (create-jdbc-connection-pool subcommand)

This explains the case where the following name and value are specified in the option "property" value.

```
user=scott:password=tiger:url="jdbc:oracle:thin:@(EXPLANATION=(ENABLE=BROKEN)
(ADDRESS_LIST=(LOAD_BALANCE=ON)(FAILOVER=ON)(ADDRESS=(PROTOCOL=tcp)
(HOST=192.168.0.1)(PORT=1521))(ADDRESS=(PROTOCOL=tcp)(HOST=192.168.0.2)
(PORT=1521)))(CONNECT_DATA=(SERVICE_NAME=rac)))"
```

The escape character is used as follows:

Windows32/64

```
asadmin create-jdbc-connection-pool --datasourceclassname
oracle.jdbc.pool.OracleConnectionPoolDataSource --restype
javax.sql.ConnectionPoolDataSource --property user=scott:password=tiger:url="jdbc\;oracle
\;thin\;@\;(EXPLANATION\=(ENABLE\=BROKEN)\;(ADDRESS_LIST
\=(LOAD_BALANCE\=ON)\;(FAILOVER\=ON)\;(ADDRESS\=(PROTOCOL\=tcp)\(HOST
\=192.168.0.1)\(PORT\=1521)\)\(ADDRESS\=(PROTOCOL\=tcp)\(HOST\=192.168.0.2)\
(PORT\=1521)\)\)\(CONNECT_DATA\=(SERVICE_NAME\=rac)))" OracleRACPool
```

Solaris32/64 **Linux32/64**

Perform the escape using one of the following methods.

Method to escape the asadmin special characters

```
asadmin create-jdbc-connection-pool --datasourceclassname
oracle.jdbc.pool.OracleConnectionPoolDataSource --restype
javax.sql.ConnectionPoolDataSource --property user=scott:password=tiger:url="jdbc\;oracle
\;thin\;@\;(EXPLANATION\=(ENABLE\=BROKEN)\)\(ADDRESS_LIST\=
(LOAD_BALANCE\=ON)\)\(FAILOVER\=ON)\)\(ADDRESS\=(PROTOCOL\=tcp)\)\(HOST
\=192.168.0.1)\)\(PORT\=1521)\)\)\(ADDRESS\=(PROTOCOL\=tcp)\)\(HOST\=192.168.0.2)\
(PORT\=1521)\)\)\)\(CONNECT_DATA\=(SERVICE_NAME\=rac)\)\)" OracleRACPool
```

Method to escape Solaris/Linux meta-characters

```
asadmin create-jdbc-connection-pool --datasourceclassname
oracle.jdbc.pool.OracleConnectionPoolDataSource --restype
javax.sql.ConnectionPoolDataSource --property user=scott:password=tiger:url=
\"jdbc:oracle:thin:@(EXPLANATION=(ENABLE=BROKEN)\)\(ADDRESS_LIST=(
LOAD_BALANCE=ON)\)\(FAILOVER=ON)\)\(ADDRESS=(PROTOCOL=tcp)\
(HOST=192.168.0.1)\)\(PORT=1521)\)\)\(ADDRESS=(PROTOCOL=tcp)\
(HOST=192.168.0.2)\)\(PORT=1521)\)\)\)\(CONNECT_DATA=(SERVICE_NAME=rac)\)\)
\" OracleRACPool
```

10. Special characters in Multimode

If a command is executed in multimode and a value that includes one or more '\' is specified, the escape must be performed using one of the following methods.

- Add one or more '\' as the escape character at the beginning.
- Enclose the value that includes the '\' with "".

Example: This shows an example of how to execute the following subcommands

```
create-jvm-options --target testserver \-Dlocation=c:\\foo\\bar
```

If the escape character is used

```
asadmin>create-jvm-options --target testserver \\-Dlocation=c:\\\\foo\\bar
```

If a double quotation is used

```
asadmin>create-jvm-options --target testserver \\-Dlocation="c:\\foo\\bar"
```

.....

If a definition item containing '!' is created, then it will be output in a format with escape characters assigned when the list subcommand is executed.



Example

.....

Example: When a thread pool with the name 'thread.pool001' is created:

```
>asadmin create-threadpool --target server thread.pool001
Command create-threadpool executed successfully.

>asadmin list server.thread-pools.thread-pool
server.thread-pools.thread-pool.thread-pool-1
server.thread-pools.thread-pool.thread\pool001
```

Specifying a Character String that Includes a Space

Windows32/64

If "sample get.txt" is specified in the value of the option "file" of the [get](#) subcommand, execute as follows:



Example

```
asadmin get --file "sample get.txt" testserver.*
```

Solaris32/64 Linux32/64

.....

A character string that includes a space in the command option cannot be specified on the command line. If a character string that includes a space in the command option must be specified, the --file option of the [multimode](#) subcommand must be used.

Examples of execution are shown below where "sample get.txt" is specified in the value of the option "file" of the [get](#) subcommand.



Example

-
1. Describe the following in the external file "execute_get.txt" using the multimode subcommand as input.

```
get --file "sample get.txt" testserver.*
```

2. Execute the multimode subcommand using 1. external file as input.

```
asadmin multimode --file execute_get.txt
```



Note

Notes on specifying character strings that contain spaces

A value with a space at the end cannot be specified. If specified, the value with the space removed is used.

Maximum Length of the Input Character String

Maximum length of the input character string when the asadmin command is executed is described below.

		Windows32/64	Solaris32/64 Linux32/64
If the multimode subcommand is not used		6984 bytes (Maximum length of the character string that can be entered in the command prompt)	256 bytes (Maximum length of the character string that can be entered in the terminal)
If the multimode subcommand is used	If the --file option is not specified	8190 bytes	256 bytes (Same as above)
	If the --file option is specified	Unlimited (The length of the character string of the command described in the external file is unlimited.)	

10.1.1 List of Subcommands of the asadmin Command

This is the list of the subcommands of the asadmin command.

Category	Target operation	Operations	name
Common	-	Help	help
		-	multimode
		-	login
Referencing/Updating definition items	Definition items	Display	get
		Settings	set
		List	list
Configuration file verification	Configuration file	Verify	verify-domain-xml
IIServer cluster operation	IIServer cluster	Create	create-cluster
		Delete	delete-cluster
		Start	start-cluster
		Stop	stop-cluster
		List	list-clusters
	Server instance	Create	create-instance
		Delete	delete-instance
		Start	start-instance
		Stop	stop-instance
		List	list-instances
	Settings	Create	copy-config
		Delete	delete-config
		Obtain list	list-configs

Category	Target operation	Operations	name
Application	Application	Show status	show-component-status
		List	list-components
		List	list-sub-components
		Deploy	deploy
		Deploy	deploydir
		Get the stub	get-client-stubs
		Undeploy	undeploy
		Expand archive	create-application-ref
		Cancel archive expansion	delete-application-ref
		List	list-application-refs
		-	enable
		-	disable
		Web server connector	Web server
Release	delete-web-server-ref		
List	list-web-server-refs		
Web server virtual host	Add		create-virtual-host-ref
	Release		delete-virtual-host-ref
	List		list-virtual-host-refs
Web server connector	Settings		update-web-server-connector-config
	Show settings		show-web-server-connector-config
Listener	IIOp listener	List	list-iiop-listeners
Thread pool	Thread pool	Create	create-threadpool
		Delete	delete-threadpool
		List	list-threadpools
Web service	Web service	Configure	configure-webservice-management
Transaction	Transaction	Freeze	freeze-transaction-service
		Unfreeze	unfreeze-transaction-service
		Recover	recover-transactions
		Roll back	rollback-transaction
		List	list-transactions
Resource	JDBC connection pool	Create	create-jdbc-connection-pool
		Delete	delete-jdbc-connection-pool
		List	list-jdbc-connection-pools
		Ping	ping-connection-pool
	JDBC resource	Create	create-jdbc-resource
		Delete	delete-jdbc-resource
		List	list-jdbc-resources
	JMS resource	Create	create-jms-resource
		Delete	delete-jms-resource

Category	Target operation	Operations	name	
		List	list-jms-resources	
	JNDI resource	Create	create-jndi-resource	
		Delete	delete-jndi-resource	
		List	list-jndi-resources	
		Browse	list-jndi-entries	
	JavaMail session	Create	create-javamail-resource	
		Delete	delete-javamail-resource	
		List	list-javamail-resources	
	Custom resource	Create	create-custom-resource	
		Delete	delete-custom-resource	
		List	list-custom-resources	
	Connector connection pool	Create	create-connector-connection-pool	
		Delete	delete-connector-connection-pool	
		List	list-connector-connection-pools	
	Connector resource	Create	create-connector-resource	
		Delete	delete-connector-resource	
		List	list-connector-resources	
	Admin object resource	Create	create-admin-object	
		Delete	delete-admin-object	
		List	list-admin-objects	
	Resource adapter definition information	Create	create-resource-adapter-config	
		Delete	delete-resource-adapter-config	
		List	list-resource-adapter-configs	
	Resource reference	Create	create-resource-ref	
		Delete	delete-resource-ref	
		List	list-resource-refs	
	Lifecycle module	Lifecycle module	Create	create-lifecycle-module
			Delete	delete-lifecycle-module
			List	list-lifecycle-modules
	System properties/JVM options	System property	Create	create-system-properties
Delete			delete-system-property	
List			list-system-properties	
JVM option		Create	create-jvm-options	
		Delete	delete-jvm-options	
Profiler configuration	Profiler configuration	Create	create-profiler	
		Delete	delete-profiler	
Monitoring	JVM report	Generate	generate-jvm-report	
Security	file realm administrator user	Change	change-admin-password	
	Service administrator user	Change	change-service-adminuser	

Category	Target operation	Operations	name
		Display	show-service-adminuser
	security map	Create	create-connector-security-map
		Delete	delete-connector-security-map
		Update	update-connector-security-map
		List	list-connector-security-maps
	password alias	Create	create-password-alias
		Delete	delete-password-alias
		List	list-password-aliases
		Update	update-password-alias
	SSL	Create	create-ssl
		Definition	delete-ssl
	Realm	Create	create-auth-realm
		Delete	delete-auth-realm
		Display list	list-auth-realms
	File realm user	Create	create-file-user
		Delete	delete-file-user
		Update	update-file-user
List		list-file-users	
File realm group	List	list-file-groups	
Database operation	Java DB	Start	start-database
		Stop	stop-database
EJB Dispatcher	EJB Dispatcher status management	Add dispatch target	create-ejb-dispatch-target
		Delete dispatch target	delete-ejb-dispatch-target
		Pause dispatch	disable-ejb-dispatch-target
		Resume dispatch	enable-ejb-dispatch-target
		Display	list-ejb-dispatch-targets
Session recovery	HTTP listener for control	Create	create-http-listener
	Virtual server for control	Create	create-virtual-server

10.1.2 asadmin Command Common Options

The following options are common options in the asadmin command.

Option name	Mnemonic name	Description
--terse	-t	Control the output to the standard output.
--echo	-e	Display the currently active command option/operand when executing.
--interactive	-I	Specify whether the user may be queried when the command is executed.
--host	-H	Specify the connection target host.
--port	-p	Specify the connection target port.

Option name	Mnemonic name	Description
--secure	-s	Specify whether to use SSL for communication with the Interstage Java EE DAS service.
--user	-u	Specify the login user name of the Interstage Java EE DAS service.
--passwordfile	None	Specify the name of the file that stores the password entry.
--help	-?	Displays the Help message.

This explains each option below.

--terse=true|false

If true is specified, the contents output to the standard output is reduced to a minimum.

This is used when executing the command from a shell script, etc.

--echo=true|false

If true is specified, the option/operand is displayed on the standard output when the command is executed.

Since the default values of options not specified are also displayed, it is possible to check under what conditions the command is run.

If this option is enabled, options that the command uses internally are also displayed. The output example is shown below.



Example

```
asadmin create-cluster --echo=true IJServer001
create-cluster --port 12001 --host localhost --interactive=true --echo=true --terse=false IJServer001
Command create-cluster executed successfully.
```

--interactive=true|false

If false is specified, the process will continue without making a query to the user when the command is executed.

This option is relevant only to subcommands that make queries to the user.

--host

Specify the host which will execute the Interstage Java EE DAS service. If this option is omitted, "localhost" will be used.



Note

For the -host value, specify the host which was installed in the same Interstage Application Server version. If a host installed in a different version is specified, the connection will not be possible.

--port

Specify the port number for the Interstage Java EE DAS service HTTP listener for operation management. If this option is omitted, the value defined in the asadminenv.conf file will be valid.

For details on the asadminenv.conf file, refer to "[10.1 asadmin](#)" - "[asadminenv.conf File](#)".

--secure=true|false

Specify whether to use SSL for communication with the Interstage Java EE DAS service. If true is set, communication with the Interstage Java EE DAS service will use SSL.

--user

Specify the login user name of the Interstage Java EE DAS service.

If this option is omitted, entry of the login user name may be requested when the default value "admin" is used when the command is executed. If the login user name entry is requested, enter the default login user name "admin".

--passwordfile

Specify the name of the file that stores the password entry.

'AS_ADMIN_PASSWORD' is used to specify the Interstage Java EE DAS service login password.

For details on which passwords can be specified, refer to the explanation on each subcommand.

If this option is omitted, entry of the login password will be required when the command is executed. Enter the password that corresponds to the specified login user.

Additionally, the encoding which can be used in the file is as follows:

- SJIS
- EUC
- UTF-8

The format of the password file is as follows:

```
AS_ADMIN_PASSWORD=password
```

If the password contains a backslash ('\'), add another backslash as the escape character.



Example

When the password is "the\password"

```
AS_ADMIN_PASSWORD=the\\password
```



The character that can be used as a separator of the password file path is '/' or '\\'.
.....



Example

```
C:/password.txt
```

.....



Note

If the security map is referenced using the Interstage Java EE Admin console or the [list-connector-security-maps](#) subcommand (when verbose is specified), the specified password is displayed as is. Therefore, a password alias is recommended for security reasons. For details, refer to "[create-password-alias](#)" subcommand.
.....

--help

Shows the subcommand Usage.

If "--help" is specified as shown below without specifying the subcommand, a list of subcommands that can be used is displayed. The contents displayed here are the same as when the help command is executed without specifying an operand.

```
>asadmin --help
```

10.1.3 Subcommands - Category: Common

10.1.3.1 help Subcommand

Synopsis

```
help [command_name]
```

Description

List the subcommands that can be used in ascending alphabetical order.

If a subcommand name is specified in the operand of the help command, the specified subcommand Usage is displayed. The contents of the display are the same as the contents as when "--help" option is specified in the subcommand.

If an incorrect command name is specified in the operand, a subcommand list including the specified character string is shown.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Options cannot be specified with the help command.

If an option is specified, it is ignored and the help command result is displayed.

Operands

Operand name	Omission	Description
Command_name	Possible	Specify the subcommand name to show Help for.

Return value

0: Ended normally

1: Ended abnormally

Example

To show a list of subcommands that can be used, execute as follows:

```
> asadmin help
User Commands                               help(1)

NAME
  help - displays the asadmin utility commands

SYNOPSIS
  help [command_name]

  command_name [--help | -?]

DESCRIPTION
  The help command shows a list of all the asadmin utility
  commands. Specify the command to show the usage informa-
  tion for that command. To display the manpage of each com-
  mand, use the syntax: asadmin command_name --help | -? or
  asadmin help command_name

  The following is a list of all the asadmin utility commands:
~snip~
```

If the Help of the specific subcommand is displayed, execute as follows:

```
>asadmin help create-cluster
Usage: create-cluster [--terse[=true|=false]] [--echo[=true|=false]] [--newinstances
instance_name1[:instance_name2]...] [--systemproperties name=value[:name=value]...] [--interactive[=true|
=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--
help] [--config config_name] cluster_name
```

10.1.3.2 multimode Subcommands

Synopsis

```
multimode [--terse[=true|=false]] [--echo[=true|=false]] [--help] [--file filename] [--printprompt[=true|=false]] [--encoding {UTF-8|SJIS|EUC}]
```

Description

The command is executed in multimode.

If the asadmin command is executed in multimode, more than one operation can continuously be executed without ending the command for each operation.

All subcommands of the asadmin command can be executed in multimode.

- Start and end of multimode.

To start the multimode, enter "asadmin multimode" or "asadmin". To end the multimode, enter "exit" or "quit" in the asadmin command prompt.

- How to read from an external file.

Multiple operations can be executed in one batch by preparing a file in which the operations are described and by specifying the file with the "--file" option when the multimode is started.

The subcommands are separated by the return symbol as shown in the file below. The option/operand can also be specified like the normal command execution.

```
subcommand 1*  
subcommand 2*  
subcommand 3*
```

* Separated by a return

The output of each subcommand is sent to the terminal in which the asadmin command is executed.

When all operations described in the file are completed, the multimode is ended and the asadmin command returns.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--file	-f	Read the operation contents from an external file.
--printprompt	None	If false is specified, a prompt is not displayed in the command line of the asadmin command.
--encoding	None	Specify the encoding of the external file. The default value differs per platform. Windows: SJIS Solaris: EUC Linux: UTF-8

Return value

0: Ended normally

1: Ended abnormally

This is the exit code for the multimode command itself. The exit codes of each subcommand executed in multimode are not notified.

Notes

If the multimode commands are executed by more than one terminal simultaneously, the order of execution of the subcommands between the terminals is not guaranteed. The subcommands specified by the `--file` option may not be executed in sequence, as shown below.

Subcommands specified by terminal A:

```
subcommand 1  
subcommand 2
```

Subcommands specified by terminal B:

```
subcommand 3  
subcommand 4
```

Execution order of the subcommands:

```
subcommand 1  
subcommand 3  
subcommand 2  
subcommand 4
```

Example

Execute a subcommand in multimode as follows:

```
> asadmin multimode  
Use "exit" to exit and "help" for online help.  
asadmin> create-cluster IJServer001  
Command create-cluster executed successfully.  
asadmin> exit
```

Execute multiple operations read from a file consecutively as follows:

```
> asadmin multimode --file list.txt --printprompt  
asadmin> Command create-cluster executed successfully.  
asadmin> Command create-cluster executed successfully.  
asadmin> Command create-cluster executed successfully.  
~omitted after this~
```

10.1.3.3 login Subcommand

Synopsis

```
login [--terse[=true|=false]] [--echo[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--help]
```

Description

Login to the Interstage Java EE DAS service.

If this command is executed, the login information for the Interstage Java EE DAS service is stored in a file so that the login user and password entry of the Interstage Java EE DAS service using the `asadmin` command can be omitted after this.

The login information is encrypted and stored in the following file.

```
[user home directory]\.asadminpass
```

If the above file is deleted, there will be a query for the administrator user ID and administrator password the next time the command is executed.

For details on the Interstage Java EE DAS service administrator user ID and administrator password, refer to "[5.1.5 Registering the Administrator User](#)".

Additionally, when the operating system realm is selected for the authentication realm which is used by the Java EE operating environment, it will be possible to omit the user ID and password in communication with Interstage Java EE DAS services on the same host. For this reason, there is no need to execute this command.

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

In machines in which Sun Java System Application Server or GlassFish has been installed before, the .asadminpass which has been generated previously may still be surviving. If this file has survived, delete it.

Example

A query is made as follows:

Enter the login user and password of the Interstage Java EE DAS service as requested.

If the .asadminpass file already exists in the user's home directory, a prompt will appear asking whether the file may be overwritten or not. If the file can be overwritten, enter "y".

Windows32/64

```
> asadmin login
Please enter the admin user name>admin
Please enter the admin password>
Trying to authenticate for administration of server at host [localhost] and port [12001] ...
An entry for login exists for host [localhost] and port [12001], probably from an earlier login operation.
Do you want to overwrite this entry (y/n)?y
Login information relevant to admin user name [admin] for host [localhost] and admin port [12001] stored at [C:\Documents and Settings\Administrator\.asadminpass] successfully.
Make sure that this file remains protected. Information stored in this file will be used by asadmin commands to manage associated domain.
```

Solaris32/64 Linux32/64

```
> asadmin login
Please enter the admin user name>admin
Please enter the admin password>
Trying to authenticate for administration of server at host [localhost] and port [12001] ...
An entry for login exists for host [localhost] and port [12001], probably from an earlier login operation.
Do you want to overwrite this entry (y/n)?y
Login information relevant to admin user name [admin] for host [localhost] and admin port [12001] stored at [/.asadminpass] successfully.
```

Make sure that this file remains protected. Information stored in this file will be used by asadmin commands to manage associated domain.

10.1.4 Subcommands - Category: Referencing/Updating Definition Items

Referencing and updating defined values is performed from the command line using the [get/set/list](#) subcommand.

These subcommands have the following features.

- Definition items value can be obtained using the get subcommand.
- A list of categories can be checked using the list subcommand.
- When the definition item name to specify to the get/list subcommand is not known, information about multiple definitions can be obtained by using the wild card (*).
- The output result can be recorded to a file using an option.
- Definitions can be updated by reading a file with the set contents using an option.

Definition items

Definition items are categorized in a hierarchy as shown below. Category and property names are separated by a period.

```
clusterclusterName.category1.category3.property1
clusterclusterName.category1.category4.property2
clusterclusterName.category2.category5.property3
clusterclusterName.category2.category6.property4
clusterclusterName.category2.category7.property5
clusterclusterName.category2.category8.property6
clusterclusterName.category2.category8.category9.property7
clusterclusterName.category2.category8.category9.property8
```

The following shows the relationship between the top category list and Interstage Java EE Admin console. For definition items that can be used, refer to "[10.19 Definition Items that can be Executed by the asadmin Command](#)".

Category name	Target operation	Interstage Java EE Admin console definition location
configs.config.http-service	HTTP service	Settings > \${Setting name} > HTTP service
configs.config.iiop-service	IIOP service	Settings > \${Setting name} > ORB
configs.config.admin-service	Admin service	Settings > \${Setting name} > Admin service
configs.config.connector-service	Connector service	Settings > \${Setting name} > Connector service
configs.config.web-container	Web container	Settings > \${Setting name} > Web container
configs.config.ejb-container configs.config.ejb-container-availability.sfsb-persistence-type	EJB container	Settings > \${Setting name} > EJB container
configs.config.mdb-container	MDB container	Settings > \${Setting name} > EJB container > MDB settings
configs.config.jms-service	JMS service	Settings > \${Setting name} > JMS service
configs.config.log-service	Log	Settings > \${Setting name} > Log settings
configs.config.security-service	Security	Settings > \${Setting name} > Security
configs.config.transaction-service	Transaction service	Settings > \${Setting name} > Transaction service
configs.config.monitoring-service	Monitoring service	Settings > \${Setting name} > Monitoring
configs.config.java-config	Java	Settings > \${Setting name} > JVM settings

Category name	Target operation	Interstage Java EE Admin console definition location
configs.config.thread-pools	Thread pool	Settings > \${Setting name} > Thread pool
configs.config.group-management-service	Group management service	Settings > \${Setting name} > Group management service
configs.config.system-property	System property	Settings > \${Setting name} > System property
configs.config.ijserver-control	Process control	Settings > \${Setting name} > Process control
resources.custom-resource	Custom resource	Resource > JNDI > Custom resource
resources.external-jndi-resource	External JNDI resource	Resource > JNDI > External resource
resources.jdbc-resource	JDBC resource	Resource > JDBC > JDBC resource
resources.mail-resource	JavaMail session	Resource > JavaMail session
resources.admin-object-resource	Admin object resource	Resource > Connector > Admin object resource
resources.connector-resource	Connector resource	Resource > Connector > Connector resource
resources.resource-adapter-config	Connector module (Resource adapter)	Application > Connector module Note: When a single connector module is deployed)
resources.jdbc-connection-pool	JDBC connection pool	Resource > JDBC > connection pool
resources.connector-connection-pool	Connector connection pool	Resource > Connector > connector connection pool

Characters that can be specified in the definition item name

The following characters can be specified in the definition item name.

- Lower case:abcdefghijklmnopqrstuvwxy
- Upper case:ABCDEFGHIJKLMNPNOPQRSTUVWXYZ
- Numbers:0123456789
- Symbols:(){}[];<>@\${}#-_/.

Wildcards and escape characters

A period or an asterisk can be specified at the end of the definition item name with the [get/list](#) subcommand.

```
asadmin list IJServer001.*
```

In this case, an asterisk functions as a wildcard.

To display the elements below the specified category, specify ".*" at the end.

For instance, the category immediately under IJServer001 is displayed in the example below.



Example

```
asadmin list IJServer001.*
```

To display all categories and subcategories, specify ".*.*" at the end.

For instance, all properties under IJServer001 are displayed in the example below.



Example

```
asadmin get IJServer001.*.*
```

If only an asterisk is specified in the argument of the [get/list](#) subcommand, a list of files in the current directory becomes the argument of the command and an error will occur because the operand becomes illegal.

Example

```
asadmin list *
```

These commands can be executed in multimode too.

To specify categories and properties that include a period in their names, specify `\`` as escape character.

Example

```
asadmin set IJServer001.http-service.property.dot\sample=value
```

When a definition is referenced in the `get` subcommand, the escape character that was specified in the `set` subcommand is not displayed. To correct the content of the definition that was displayed in the `get` subcommand and reset it in the `set` subcommand, specify the escape character again where necessary. For details on how to specify the escape character, refer to ["Using Escape Characters"](#).

How to specify server instances/IJServer clusters/settings

To reference/update the items under the server instance/IJServer cluster/settings, specify as shown below.

- When the operation target is 'server instance'

Referencing/updating the definition items under the operation target

Specify the server instance name to reference/update the items.

Example

```
asadmin get Server001.start-instance-in-startup
```

Referencing/updating the definition items under the operation target

Specify the server instance name to reference/update the items.

Example

```
asadmin get Server001.application-ref.MEjbApp.enabled
```

- When the operation target is 'IJServer cluster'

Referencing/updating the definition items under the operation target

Specify the IJServer cluster name to reference/update the items.

Example

```
asadmin get IJServer001.heartbeat-enabled
```

- When the operation target is 'settings'

Referencing/updating the definition items under the operation target

Specify the settings name to reference/update the items.

Example

```
asadmin get IJServer001-config.dynamic-reconfiguration-enabled
```

Referencing/updating the definition items under the operation target

Specify the server instance name, IJServer cluster name, or settings name to reference/update the items.

When the server instance name and IJServer cluster name are specified, it is the same as specifying the settings that are referenced.

Example

server instance name

```
asadmin get Server001.http-service.access-log.log-backup-size
```

IJServer cluster name

```
asadmin get IJServer001.http-service.access-log.log-backup-size
```

settings name

```
asadmin get IJServer001-config.http-service.access-log.log-backup-size
```

10.1.4.1 get Subcommand

Synopsis

```
get [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--file filename] [--encoding {UTF-8|SJIS|EUC}] property_name[ property_name]...
```

Description

Display the specified [Definition items](#).

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to " 10.1.1 List of Subcommands of the asadmin Command ".
--passwordfile	None	Refer to " 10.1.1 List of Subcommands of the asadmin Command ".
--help	-?	Refer to " 10.1.1 List of Subcommands of the asadmin Command ".
--file	-f	The result is output to the specified external file. If a non-existing directory or file are specified and the user executing the command has write authority, the directory and file are created automatically.

Option name	Mnemonic name	Description
		If an existing file is specified, a prompt will ask confirmation whether the file is to be overwritten or not.
--encoding	None	Specify the encoding of the external file. The default value differs per platform. Windows: SJIS Solaris: EUC Linux: UTF-8

Operands

Operand name	Omission	Description
property_name	Not possible	Specify the definition items that you want to display the value of. If more than one item is specified, separate the items with a space. For details on the characters that can be used in the definition item name, refer to " 10.1.4 Subcommands - Category: Referencing/Updating Definition Items " - " Characters that can be specified in the definition item name ".

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

When a definition is referenced in the get subcommand, the escape character that was specified in the set subcommand is not displayed. To correct the content of the definition that was displayed in the get subcommand and reset it in the set subcommand, specify the escape character again where necessary. For details on the method to specify the escape character, refer to "[Using Escape Characters](#)".

Example

To display the value of definition item jvm-options, execute as follows:

```
> asadmin get IJServer001.java-config.jvm-options
IJServer001.java-config.jvm-options=-XX:MaxPermSize=192m,-
Djavax.management.builder.initial=com.sun.enterprise.ee.admin.AppServerMBeanServerBuilder.....
```

As shown below, an asterisk can also be used as part of the definition item name.

```
> asadmin get IJServer001.*.*
```

To output the display result of the command to a file, specify the file name as follows:

```
> asadmin get --file config.txt IJServer001.*.*
```

If more than one definition item is specified, specify the definition items as follows:

```
> asadmin get resources.jdbc-connection-pool.DerbyPool.name resources.jdbc-resource.jdbc/___default.jndi-
name
```

10.1.4.2 set Subcommand

Synopsis

```
set [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user
admin_user] [--passwordfile file_name] [--help] [--encoding {UTF-8|SJIS|EUC}] [--file filename]
property_name=value[ property_name=value]...
```

Description

Set the specified [Definition items](#).

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--encoding	None	Specify the encoding of the external file. The default value differs per platform. Windows: SJIS Solaris: EUC Linux: UTF-8
--file	-f	Read a list of definition items and values from the external file. If an error occurs in the definition update, an error message is displayed for each element in the following manner. ERROR (% element %): % detailed message % Refer to the above elements and detailed messages. Either the operand property name or this option can be specified.

Operands

Operand name	Omission	Description
property_name=value	Not possible	Specify the definition item name and value, separated by "=". (*1) Separate by a space if more than one is specified. If an error occurred in the definition update, an error message is displayed for each element in the following manner. ERROR (% element %): % detailed message % Refer to the above elements and detailed messages. Either the operand property name or this option can be specified.

Operand name	Omission	Description
		For details on the characters that can be used in the definition item name, refer to " 10.1.4 Subcommands - Category: Referencing/Updating Definition Items " - " Characters that can be specified in the definition item name ".

*1 When a value is omitted and only the definition item name and "=" are specified, the following behavior occurs depending on the definition item.

Definition item type	Behavior
A definition item for which the value cannot be omitted	An error occurs.
The value can be omitted AND there is a default value definition item	This is initialized to the default value.
The value can be omitted AND there is no default value definition item	The empty character string "" is set.
System property or additional property	The system property or additional property that was specified in property_name is deleted.

Return value

0: Ended normally

1: Ended abnormally

Notes

- When the additional property value is set, there is no check for the value range - any property name/value can be specified. If an invalid property is set, then it will be ignored.
- If the following message is output when the command is executed, the item displayed by the "definition item name" cannot be set for each IJServer cluster. It is necessary to change the value by directly specifying the resource or application referred by the IJServer cluster.

The attribute "definition item name" can only be modified at the domain level (*1).

Set as follows with "XXX.YYY" not "IJServer cluster name.XXX.YYY".

```
> asadmin set XXX.YYY
```

*1 The domain level consists of definitions valid for all IJServer clusters.

```
applications.web-module.admingui.object-type
```

- Double-byte characters cannot be set in the command operand.
- When a definition is referenced in the get subcommand, the escape character that was specified in the set subcommand is not displayed. To correct the content of the definition that was displayed in the get subcommand and reset it in the set subcommand, specify the escape character again where necessary. For details on the method to specify the escape character, refer to "[Using Escape Characters](#)".

Example

To set the value of the definition item maximum-processing-time, execute as follows:

```
> asadmin set IJServer001.ijserver-control.maximum-processing-time=480
IJServer001.ijserver-control.maximum-processing-time=480
```

For items that can be omitted, the default value can be used by omitting the value, and just specifying the item name followed by '=':

```
> asadmin set IJServer001.ejb-container.max-pool-size=
```

To read a list of definition items and values from an external file, specify the file name as shown below.

```
> asadmin set --file config.txt
```

To specify more than one definition item, specify the definition items as follows:

```
> asadmin set resources.jdbc-connection-pool.DerbyPool.allow-non-component-callers=false resources.jdbc-resource.jdbc/___default.enabled=true
```

10.1.4.3 list Subcommand

Synopsis

```
list [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [category_name[ category_name]...]
```

Description

Show a category list.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
category_name	Possible	Specify the parent category that you want to display. Separate by the space if more than one is specified. If the operand is omitted, the top category is displayed. For details on the characters that can be used in the category (definition item name), refer to "10.1.4 Subcommands - Category: Referencing/Updating Definition Items" - "Characters that can be specified in the definition item name".

Return value

0: Ended normally

1: Ended abnormally

Example

To show a category list under the IJServer cluster, execute as follows:

```
> asadmin list IJServer001.*
IJServer001.category1.category2
IJServer001.category1.category3
```

To specify more than one category, specify the category as shown below.

```
> asadmin list resources.jdbc-connection-pool resources.jdbc-resource
```

10.1.5 Subcommands - Category: Configuration File Verification

10.1.5.1 verify-domain-xml Subcommand

Synopsis

```
verify-domain-xml [--terse[=true|=false]] [--echo[=true|=false]] [--verbose[=true|=false]] [--help]
```

Description

This verifies the Interstage Java EE DAS service configuration file. The storage location of the configuration file is as follows:

Windows32/64

```
[Java EE common directory]\domains\interstage\config\domain.xml
```

Solaris32/64 **Linux32/64**

```
[Java EE common directory]/domains/interstage/config/domain.xml
```

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--verbose	-v	<ul style="list-style-type: none">- When 'true' is specified If the verification command detects an error in the configuration file, all the error information is output.- When 'false' is specified A maximum of 50 items of error information are output. The rest of the error information is omitted. The default is 'false'.

Return value

0: Ended normally

1: Ended abnormally

Notes

If there was a verification error, the command terminates abnormally and "1" is returned.

Example

Execute as follows:

```
> asadmin verify-domain-xml
asadmin: INFO: ISJEE_CLI308: All Tests Passed, domain.xml is valid.
Command verify-domain-xml executed successfully
```

10.1.6 Subcommands - Category: IJServer Cluster Operation

10.1.6.1 create-cluster Subcommand

Synopsis

```
create-cluster [--terse[=true|=false]] [--echo[=true|=false]] [--newinstances instance_name1[:instance_name2]...] [--systemproperties name=value[:name=value]...] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--config config_name] cluster_name
```

Description

Create the IJServer cluster.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--config	-c	Specify the IJServer cluster to use the definitions as the template from.
--systemproperties	None	Specify the system properties for the IJServer cluster.
--newinstances	None	Specify the instance name to be created in batch.

Operands

Operand name	Omission	Description
cluster_name	Not possible	Specify the IJServer cluster name. For the character string that can be specified in the IJServer cluster name, refer to "Definition items of IJServer cluster".

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- When the new IJServer cluster is created, the name of an existing IJServer cluster cannot be specified, regardless of any differences between uppercase and lowercase.
For example, if `ijserver001` is predefined, `IJSERVER001` cannot be created as a new IJServer cluster.
- If the IJServer cluster was created according to the following conditions, processing to create the IJServer cluster may take an additional amount of time:
 - If the IJServer cluster is created when many server instances have been created, or
 - The IJServer cluster is created when large amounts of IJServer clusters are defined
- The Interstage Java EE DAS service settings (`server-config`) and default settings (`default-config`) cannot be specified for the `-config` option.

Example

Execute as follows:

```
> asadmin create-cluster IJServer001
Command create-cluster executed successfully.
```

If the default request reception ports are used by another IJServer cluster, new port numbers are automatically assigned when the command is executed. In this case, a list of the assigned port numbers is shown as below.

```
> asadmin create-cluster --newinstances instance1:instance2 IJServer001
The server instance instance1 has been created with new ports:
Using 28,091 for HTTP_LISTENER_PORT.
Using 23,821 for IIOP_SSL_LISTENER_PORT.
Using 23,701 for IIOP_LISTENER_PORT.
Using 28,687 for JMX_SYSTEM_CONNECTOR_PORT.
Using 23,921 for IIOP_SSL_MUTUALAUTH_PORT.
The server instance instance2 has been created with new ports:
Using 28,092 for HTTP_LISTENER_PORT.
Using 23,822 for IIOP_SSL_LISTENER_PORT.
Using 23,702 for IIOP_LISTENER_PORT.
Using 28,688 for JMX_SYSTEM_CONNECTOR_PORT.
Using 23,922 for IIOP_SSL_MUTUALAUTH_PORT.
Command create-cluster executed successfully.
```

10.1.6.2 delete-cluster Subcommand

Synopsis

```
delete-cluster [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]
[--user admin_user] [--passwordfile file_name] [--help] cluster_name
```

Description

Delete the IJServer cluster.

When the IJServer cluster is deleted, the server instances that belong to the IJServer cluster and the settings that are referenced by the IJServer cluster are also deleted.

For details on the `asadmin` command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
cluster_name	Not possible	Specify the IJServer cluster name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- Before executing this command, stop the IJServer cluster target with the [stop-cluster](#) subcommand. An IJServer cluster that is already started is not deleted.
- If files under `${com.sun.aas.instanceRoot}` are locked when this command is executed, the files may survive.
- If settings except those under `${com.sun.aas.instanceRoot}` are changed in the directory locations shown below, the directory will not be deleted even if this command is executed. Delete the directory manually.
 - Log output directory (for details, refer to "[4.22 Java EE Application Logs](#)")
 - Current directory (for details, refer to "[2.4.2 IJServer Cluster File Configuration](#)")

Example

Execute as follows:

```
> asadmin delete-cluster IJServer001
Command delete-cluster executed successfully.
```

10.1.6.3 start-cluster Subcommand

Synopsis

```
start-cluster [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] cluster_name
```

Description

Start the IJServer cluster.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
cluster_name	Not possible	Specify the IJServer cluster name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- The Interstage Java EE Node Agent service must be running before this subcommand is used.
- If one of the defined IJServer clusters is in the process of starting or stopping, IJServer cluster startup operation does not start and an error is output.
- If the IJServer cluster is "partially running", all server instances that are not running will start up.
- When multiple operations are executed for the same IJServer cluster at the same time, an error might be returned in one of the operations. For details, refer to "Executing Operations at the Same Time".

Example

Execute as follows:

```
> asadmin start-cluster IJServer001
The clustered instance, IJServer001-1, was successfully started
Command start-cluster executed successfully.
```

10.1.6.4 stop-cluster Subcommand

Synopsis

```
stop-cluster [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--force[=true|=false]] cluster_name
```

Description

Stop the IJServer cluster.

If none of the IJServer cluster processes stop when IJServer cluster stop wait time of Process Control Definition Items is exceeded, remaining processes are stopped by force.

There are two types for the stop method: Normal Stop and Stop by Force.

In Stop by Force, the behavior is as follows:

- There is no wait until the application closes. Applications that are being called from the client are also stopped without waiting for processing to end.
- Lifecycle module stop processing is not performed.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--force	-F	Stop the IJServer cluster forcefully.

Operands

Operand name	Omission	Description
cluster_name	Not possible	Specify the IJServer cluster name.

Return value

0: Ended normally

1: Ended abnormally

Notes

- The Interstage Java EE Node Agent service must be running before this subcommand is used.
- When multiple operations are executed for the same IJServer cluster at the same time, an error might be returned in one of the operations. For details, refer to "Executing Operations at the Same Time".

Example

Execute as follows:

```
> asadmin stop-cluster IJServer001
The clustered instance, IJServer001-1, was successfully stopped.
Command stop-cluster executed successfully.
```

10.1.6.5 list-clusters Subcommand

Synopsis

```
list-clusters [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [target]
```

Description

This shows a list of IJServer clusters and their operating status.

The operating status is shown using the following character string.

Displayed contents	Meaning
Starting	Start in progress
Running	Running status
Stopping	Stop in progress
not running	Stopping status
partially running	Partially running status

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Possible	<p>Specify the domain, the IJServer cluster name, and the server instance name.</p> <p>If this parameter is omitted, all IJServer cluster names are displayed. (This is the behavior when the domain has been specified.)</p> <p>If the server instance name is specified, the name of the IJServer cluster that the server instance belongs to is displayed.</p> <p>If the IJServer cluster name is specified, information about the specified IJServer cluster is displayed.</p> <p> Note</p> <p>.....</p> <p>Interstage Java EE DAS service server instances (server) cannot be specified.</p> <p>.....</p> <p>If the target does not exist, an error is returned.</p> <p>If the target exists, but none of the displayed IJServer clusters exist, there is a normal return.</p>

Return value

- 0: Ended normally
- 1: Ended abnormally

Note

The Interstage Java EE Node Agent service must be running before this subcommand is used.

Example

Execute as follows:

```
> asadmin list-clusters
IJServer001      running
IJServer002      starting
IJServer003      stopping
Command list-clusters executed successfully.
```

10.1.6.6 create-instance Subcommand

Synopsis

```
create-instance [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]
[--user admin_user] [--passwordfile file_name] [--help] [--systemproperties name=value[:name=value]...] --cluster cluster_name
instance_name[:instance_name]...
```

Description

This creates the server instance.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--systemproperties	None	Specify the system properties for the server instance.
--cluster	None	Specify the IJServer cluster name.

Operands

Operand name	Omission	Description
instance_name	Not possible	Specify the server instance. When multiple sever instances are specified, concatenate each sever instance name with a colon (:).

Return value

- 0: Ended normally
- 1: Ended abnormally

Note

If the server instance is created according to the following conditions, the server instance create processing might take a while.

- The IJServer cluster is created when the IJServer cluster that was defined has had a large number of server instances created for it

Example

Execute as follows:

```
> asadmin create-instance --cluster IJServer001 instance1
Command create-instance executed successfully
```

When the default port for receiving requests is used by another IJServer cluster, a new port number will be assigned automatically when the command is executed. At this time, the list of port numbers that are being used is displayed as follows:

```
> asadmin create-instance --cluster IJServer001 instance1
Using 28,091 for HTTP_LISTENER_PORT.
Using 23,821 for IIOP_SSL_LISTENER_PORT.
Using 23,701 for IIOP_LISTENER_PORT.
Using 28,687 for JMX_SYSTEM_CONNECTOR_PORT.
Using 23,921 for IIOP_SSL_MUTUALAUTH_PORT.
Command create-instance executed successfully.
```

When multiple instances are specified, use as follows:

```
> asadmin create-instance --cluster IJServer001 instance1:instance2:instance3
The server instance instance2 has been created with new ports:
Using 28,091 for HTTP_LISTENER_PORT.
Using 23,821 for IIOP_SSL_LISTENER_PORT.
Using 23,701 for IIOP_LISTENER_PORT.
Using 28,687 for JMX_SYSTEM_CONNECTOR_PORT.
Using 23,921 for IIOP_SSL_MUTUALAUTH_PORT.
The server instance instance3 has been created with new ports:
Using 28,092 for HTTP_LISTENER_PORT.
Using 23,822 for IIOP_SSL_LISTENER_PORT.
Using 23,702 for IIOP_LISTENER_PORT.
Using 28,688 for JMX_SYSTEM_CONNECTOR_PORT.
Using 23,922 for IIOP_SSL_MUTUALAUTH_PORT.
Command create-instance executed successfully.
```

10.1.6.7 delete-instance Subcommand

Synopsis

```
delete-instance [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]
[--user admin_user] [--passwordfile file_name] [--help] instance_name[:instance_name]...
```

Description

This deletes the server instance.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
instance_name	Not possible	Specify the server instance name. Concatenate each sever instance name with a colon (:).

Return value

- 0: Ended normally
- 1: Ended abnormally

Note

- Before executing this command, stop the target server instance using the stop-instance subcommand. Server instances that are already running cannot be deleted.
- If files under `${com.sun.aas.instanceRoot}` are locked when this command is executed, the files may survive.
- If settings except those under `${com.sun.aas.instanceRoot}` are changed in the directory locations shown below, the directory will not be deleted even if this command is executed. Delete the directory manually.
 - Log output directory (for details, refer to "[4.22 Java EE Application Logs](#)")
 - Current directory (for details, refer to "[2.4.2 IJServer Cluster File Configuration](#)")

Example

Execute as follows:

```
> asadmin delete-instance instance1
Command delete-instance executed successfully.
```

When multiple instances are specified, use as follows:

```
> asadmin delete-instance instance1:instance2
Command delete-instance executed successfully.
```

10.1.6.8 start-instance Subcommand

Synopsis

```
start-instance [--terse[=true|=false]] [--echo[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--interactive[=true|=false]]
[--user admin_user] [--passwordfile file_name] [--help] instance_name
```

Description

This starts the server instance.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
instance_name	Not possible	Specify the server instance name.

Return value

0: Ended normally

1: Ended abnormally

Note

- While start or stop processing is being performed for a predefined IJServer cluster, the server instance start operation cannot start and an error is output.
- When multiple operations are executed for the same IJServer cluster at the same time, an error might be returned in one of the operations. For details, refer to "Executing Operations at the Same Time".

Example

Execute as follows:

```
> asadmin start-instance instance1  
Command start-instance executed successfully.
```

10.1.6.9 stop-instance Subcommand

Synopsis

```
stop-instance [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]  
[--user admin_user] [--passwordfile file_name] [--help] [--force[=true|=false]] instance_name
```

Description

This stops the server instance.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--force	-F	Stop the server instance by force.

Operands

Operand name	Omission	Description
instance_name	Not possible	Specify the server instance name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Note

When multiple operations are executed for the same IJServer cluster at the same time, an error might be returned in one of the operations. For details, refer to "Executing Operations at the Same Time".

Example

Execute as follows:

```
> asadmin stop-instance instance1  
Command stop-instance executed successfully.
```

10.1.6.10 list-instances Subcommand

Synopsis

```
list-instances [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]  
[--user admin_user] [--passwordfile file_name] [--help] [target]
```

Description

List server instances and their operating status.

The operating status is displayed by one of the following.

Displayed contents	Meaning
Starting	Starting in progress
Running	Running status

Displayed contents	Meaning
not running	Stopping status
required restart	Status that it requires a restart
Unknown	Unknown status. (*1)

*1 An error occurred while obtaining the server instance status, therefore the status could not be confirmed. The server instance may have hung up.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Possible	<p>Specify the domain, the IJServer cluster name, and the server instance name.</p> <p>If this parameter is omitted, all server instance names are displayed. (This is the behavior when the domain has been specified.)</p> <p>If the IJServer cluster name is specified, all the server instances that belong to the specified IJServer cluster are displayed.</p> <p>If the server instance name is specified, information about the specified server instance name is displayed.</p> <p> Note</p> <p>.....</p> <p>Interstage Java EE DAS service server instances (server) cannot be specified.</p> <p>.....</p> <p>If the target does not exist, an error is returned.</p> <p>If the target exists, but none of the displayed server instances exist, there is a normal return.</p>

Return value

0: Ended normally

1: Ended abnormally

Note

If it takes a while for this command to return and the result is "not running", then refer to "Operating Environment-Related Errors" > "If obtaining server instance status takes too long".

Example

Execute as follows:

```
> asadmin list-instances
IJServer001-1 running
IJServer001-2 running
IJServer002-1 not running
Command list-instances executed successfully.
```

10.1.6.11 copy-config Subcommand

Synopsis

```
copy-config [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--systemproperties name=value[:name=value]...] source_config_name new_config_name
```

Description

This creates the settings.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--systemproperties	None	Set the system properties for the settings.

Operands

Operand name	Omission	Description
source_config_name	Not possible	Specify the copy source settings name.
new_config_name	Not possible	Specify the new settings name that is to be created.

Return value

0: Ended normally

1: Ended abnormally

Note

The Interstage Java EE DAS service settings (server-config) cannot be specified in the copy source.

Example

Execute as follows:

```
> asadmin copy-config default-config cluster1-config  
Command copy-config executed successfully.
```

10.1.6.12 delete-config Subcommand

Synopsis

```
delete-config [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]  
[--user admin_user] [--passwordfile file_name] [--help] config_name
```

Description

This deletes the settings.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
config_name	Not possible	Specify the settings name.

Return value

0: Ended normally

1: Ended abnormally

Note

The settings cannot be deleted in the following cases:

- When the settings are referenced from the IJServer cluster
- Interstage Java EE DAS service settings (server-config)
- Default settings (default-config)

Example

Execute as follows:

```
> asadmin delete-config config1  
Command delete-config executed successfully.
```

10.1.6.13 list-configs Subcommand

Synopsis

```
list-configs [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--  
user admin_user] [--passwordfile file_name] [--help] [target]
```

Description

This displays the settings list.

For details on the usage and points to be noted on the asadmin command, refer also to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Possible	<p>Specify the domain, the settings name, the IJServer cluster name, or the server instance name.</p> <p>If this parameter is omitted, all settings names are displayed. (This is the behavior when the domain has been specified.)</p> <p>If the server instance name is specified, the settings name that is referenced by the server instance is displayed.</p> <p>If the IJServer cluster name is specified, the settings name that is referenced by the IJServer cluster is displayed.</p> <p>If the settings name is specified, information about the specified settings is displayed.</p> <p> Note</p> <p>- Interstage Java EE DAS service server instances (server) cannot be specified.</p>

Operand name	Omission	Description
		<ul style="list-style-type: none"> - If the domain is specified, the following fixed settings are displayed: <ul style="list-style-type: none"> - server-config: Interstage Java EE DAS service definitions - default-config: Default definitions <p>.....</p> <p>If the target does not exist, an error is returned.</p>

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```

> asadmin list-configs
server-config
default-config
cluster1-config
cluster2-config
Command list-configs executed successfully.
```

10.1.7 Subcommands - Category: Application Status Display

10.1.7.1 show-component-status Subcommand

Synopsis

```
show-component-status [--terse[=true|=false]] [--echo[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--interactive[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target component-name
```

Description

This displays the status of the application which has been deployed to the target, or the status of the lifecycle module.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the target Interstage Java EE DAS service instance name("server")/IJServer cluster name, server instance name or domain.

Operands

Operand name	Omission	Description
component-name	Not possible	Specify the application or lifecycle module name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin show-component-status --target IJServer001 testEar
Status of testEar is enabled.
Command show-component-status executed successfully.
```

10.1.7.2 list-components Subcommand

Synopsis

```
list-components [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]
[--user admin_user] [--passwordfile file_name] [--help] [--type application|ejb|web|connector|webservice] target
```

Description

List the applications that have already been deployed in the Interstage Java EE DAS service instance/IJServer cluster

The following information is displayed. Additionally, applications deployed as web services can be displayed as "webservice" as well as "module".

- Application name
- Module type:
 - j2ee-application
 - ear file
 - web-module
 - war file
 - connector-module
 - rar file
 - ejb-module
 - ejb-jar file
 - appclient-module
 - client-jar file
 - webservice
 - Web service application

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--type	None	Specify the module type for the target display.

Operands

Operand name	Omission	Description
target	Not possible	Specify the target Interstage Java EE DAS service instance name("server")/ IJServer cluster name, server instance name or domain.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-components IJServer001
testEar <j2ee-application>
testWeb <web-module>
testEjb <ejb-module>
testAppCl <appclient-module>
Command list-components executed successfully.
```

10.1.7.3 list-sub-components Subcommand

Synopsis

```
list-sub-components [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--type ejbs|servlets] [--appname appname] modulename
```

Description

List the modules embedded in the Enterprise Application (.ear) that has already been deployed in the Interstage Java EE DAS service instance/IJServer cluster.

The information displayed is as follows:

- Submodule name
- Submodule type:
 - AppClientModule
 - client-jar file

- EjbModule
 - ejb-jar file
- ResourceAdapterModule
 - rar file
- WebModule
 - war file
- Component types
 - EntityBean
 - ResourceAdapter
 - StatelessSessionBean
 - StatefulSessionBean
 - Servlet

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--type	None	Specify the module type for the target display.
--appname	None	Specify the application name with this option if a list of components including the submodule is displayed.

Operands

Operand name	Omission	Description
modulename	Not possible	Specify the application name for the target display. Specify the submodule name if the --appname option is used.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

If the appname option is not used, execute as follows:

```
> asadmin list-sub-components testEar
testAppCl.jar <AppClientModule>
testEjb.jar <EJBModule>
testWeb.war <WebModule>
Command list-sub-components executed successfully.
```

If the appname option is used, execute as follows:

```
> asadmin list-sub-components --appname testEar testWeb.war
servlet1 <Servlet>
servlet2 <Servlet>
servlet3 <Servlet>
servlet4 <Servlet>
Command list-sub-components executed successfully.
```

10.1.8 Subcommands - Category: Application Deployment



Note

For the points to be noted, refer to "Notes on Deployment".

10.1.8.1 deploy Subcommand

Synopsis

```
deploy [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user
admin_user] [--passwordfile file_name] [--help] [--contextroot context_root] [--force[=true|=false]] [--precompilejsp[=true|=false]] [--
verify[=true|=false]] [--name component_name] [--retrieve local_dirpath] [--createtables[=true|=false] | --dropandcreatetables[=true|
=false]] [--enabled[=true|=false]] [--libraries jar_file[,jar_file]...] --target target filepath
```

Description

This deploys the deployment module to Java EE. In order to execute the application when domain is specified for the target, use the create-application-ref subcommand to expand the application archive to the target.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--contextroot	None	Specify the context-root. This option is valid when the module type is the following. - Web Application(.war)

Option name	Mnemonic name	Description
		When this is omitted, the value minus the file extension from the deployment target file is used.
--force	None	Specify if redeployment is required or not when the same module is already deployed. The default value is false.
--precompilejsp	None	Specify if JSPs must be compiled before execution. The default value is false. If this option is enabled and an error occurred in the JSP page pre-compile, a message is output and the process is aborted.
--verify	None	Specify if validation of the deployed module is enabled or not. The default value is false. For details, refer to "Verifying the Java EE application".
--name	None	Specify the application name. The default value is the module name excluding the file extension.
--retrieve	None	Retrieve the client stub JAR file. Specify the directory to store the retrieved JAR file in. For details on the client stub JAR file configuration, refer to "Java EE Application Client Operation"- "Download the client stub JAR File".
--createtables	None	Specify if the tables mapped to in the Java Persistence Entity included in the application to be deployed are to be created or not. If omitted, the definition of the property toplink.ddl-generation of the persistence unit specified in the persistence.xml is enabled. If both this option and the toplink.ddl-generation persistence unit property in persistence.xml are specified, then this option will have the higher priority. For details, refer to "Functionality for the Automatic Generation of Database Tables". Before using this function, the environment settings of the JDBC driver must be set in the Interstage Java EE DAS service. For details on how to set the environment, refer to "Environment settings of the JDBC driver".
--dropandcreatetables	None	In case of newly deployed application, specify if the tables mapped to in the Java Persistence Entity included in the deployed module are to be created or not. If a table of the same name exists, the table is not created. In case of redeployment, specify if the tables are to be recreated or not. If omitted, the definition of the property toplink.ddl-generation of the persistence unit specified in the persistence.xml is enabled. If both this option and the toplink.ddl-generation persistence unit property in persistence.xml are specified, then this option will have the higher priority. For details, refer to "Functionality for the Automatic Generation of Database Tables". Before using this function, the environment settings of the JDBC driver must be set in the Interstage Java EE DAS service. For details on how to set the environment, refer to "Environment settings of the JDBC driver".
--enabled	None	Specify if the application is enabled or not after deployment. The default value is true. At the time of redeployment, the value that was specified in this option is ignored.

Option name	Mnemonic name	Description
--libraries	None	<p>Specify the libraries (JAR files) that are referenced from the application using the full path. If multiple libraries are specified, use a comma (',') to separate them. If this option is omitted during redeployment, the setting from the previous deployment is reused.</p> <p>Note the following when using this option:</p> <p> Note</p> <p>- This option is disabled when stand-alone connector modules are deployed.</p> <p>- Store the libraries (JAR files) in a location that does not contain commas in the path component. If commas are included, they might be treated as path separators and the deployment might fail.</p>
--target	None	<p>Specify the Interstage Java EE DAS service instance name/IJServer cluster name/domain of the deployment destination.</p> <p>If there is an application bug or definition error, the Interstage Java EE DAS service might not be able to start up, so do not deploy applications to Interstage Java EE DAS services in the operating environment.</p>

Options that can Only be Used in Session Recovery

Option name	Mnemonic name	Description
--virtualservers	None	<p>This option can only be used with session recovery. Additionally, it is not displayed in the Help message.</p> <p>When using session recovery, select the deployment destination virtual server.</p> <p>- To deploy the user application: "server"</p> <p>Specify these options in the following format:</p> <p>--virtualservers=server</p>
--availabilityenabled	None	<p>This option can only be used with session recovery. Additionally, it is not displayed in the Help message.</p> <p>When using session recovery, specify "true" to make the deployed user application the session recovery target. The default value is "false".</p> <p>Specify these options in the following format:</p> <p>--availabilityenabeld={true false}</p>

For examples of these settings, refer to ["4.10.3 Session Registry Client Settings"](#).

Operands

Operand name	Omission	Description
filepath	Not possible	Specify the file to deploy.

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- If the web service application is included in the deployment target file specified in the filepath operand, then the configure-webservice-management command must be executed before the web service definition items are operated using the get/list command.
- To redeploy an application whose archive has been expanded to multiple targets when the deploy subcommand is used, specify domain for the target. If domain is not specified, an error will occur.
- Multiple deploy/undeploy operations cannot be executed at the same time. If a new deployment/undeployment operation is submitted before the current deployment/undeployment operation returns, the new operation will wait for the completion of the current operation.
- The 'target' option can be omitted for deployment using the Interstage Java EE Admin Console. If deployment is performed without a target, the domain will be used instead.

Example

Execute as follows:

```
> asadmin deploy --target IJServer001 sample.ear  
Command deploy executed successfully.
```

10.1.8.2 deploydir Subcommand

Synopsis

```
deploydir [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--contextroot context_root] [--force[=true|=false]] [--precompilejsp[=true|=false]] [--verify[=true|=false]] [--name component_name] [--createtables[=true|=false]] | --dropandcreatetables[=true|=false]] [--enabled[=true|=false]] [--libraries jar_file[,jar_file]...] --target target dirpath
```

Description

The application for which the archive was expanded to the specified directory is deployed to Interstage Java EE.

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--contextroot	None	Specify context-root. This option is enabled when the module type is as follows: - Web application If this is omitted, the directory name will be used.
--force	None	If the same module has already been deployed, specify whether to redeploy it. The default value is false.

Option name	Mnemonic name	Description
--precompilejsp	None	Specify whether to compile before executing the JSP application. The default value is false. If this option is enabled and an error occurs in the JSP page precompile, a message is output and processing is interrupted.
--verify	None	Specify whether to enable deployment module verification. The default value is false. For details, refer to " 4.6.3 Verifying the Application ".
--name	None	Specify the application name. The default value is directory name.
--createtables	None	<ul style="list-style-type: none"> - When JPA is used: Specify whether to create tables which are mapped to Java Persistence Entity which is contained in the deployed application. When this is omitted, the definition of the toplink.ddl-generation persistence unit property, which is specified in persistence.xml, will be enabled. For details, refer to "2.11.6 Functionality for the Automatic Generation of Database Tables". - JPA/Entity Bean common environment settings: Before this feature is used, the JDBC driver environment settings must be configured in the Interstage Java EE DAS service. For details on how to configure the JDBC driver environment settings, refer to "4.16.1 Setting the JDBC Driver Environment".
--dropandcreatetables	None	<ul style="list-style-type: none"> - When JPA is used: For new deployments, specify whether to create tables which are mapped to Java Persistence Entity which is contained in the deployment module. If a table with the same name already exists, the table will not be created. For redeployments, specify whether to create tables again. When this is omitted, the definition of the toplink.ddl-generation persistence unit property, which is specified in persistence.xml, will be enabled. Additionally, if this option and the toplink.ddl-generation persistence unit property definition specified in persistence.xml are both specified, this option will have the higher priority. For details, refer to "2.11.6 Functionality for the Automatic Generation of Database Tables". - JPA/Entity Bean common environment settings: Before this feature is used, the JDBC driver environment settings must be configured in the Interstage Java EE DAS service. For details on how to configure the JDBC driver environment settings, refer to "4.16.1 Setting the JDBC Driver Environment".
--enabled	None	Specify whether to enable the application after deployment. The default value is true. Note that the value specified for this value will be ignored at the time of the redeployment.

Option name	Mnemonic name	Description
--libraries	None	<p>Specify the library (JAR files) which is referenced from the application. Specify the absolute path. If multiple libraries are specified, use a comma (',') to separate them.</p> <p>Note that, if this option is omitted at the time of the redeployment, the value that was specified before the redeployment will be valid.</p> <p> Note</p> <p>.....</p> <p>Note the following points when using this option:</p> <ul style="list-style-type: none"> - This option is disabled when stand-alone connector modules are deployed. - Store the library (JAR files) in a location which does not contain commas in the path components. If commas are included, they may be treated as path separators and the deployment may fail. <p>.....</p>
--target	None	<p>Specify the archive expansion target Interstage Java EE DAS service instance name ("server")/IIServer cluster name/domain. Note that, if there is an application bug or definition error, the Interstage Java EE DAS service may not be able to start up, so do not deploy applications to Interstage Java EE DAS services in the operating environment.</p>

Options that can Only be Used in Session Recovery

Option name	Mnemonic name	Description
--virtualservers	None	<p>This option can only be used with session recovery. Additionally, it is not displayed in the Help message.</p> <p>When using session recovery, select the deployment destination virtual server.</p> <ul style="list-style-type: none"> - To deploy the application for control: "__sessionrecovery" - To deploy the user application: "server" <p>Specify these options in the following format:</p> <pre>--virtualservers={__sessionrecovery server}</pre>
--availabilityenabled	None	<p>This option can only be used with session recovery. Additionally, it is not displayed in the Help message.</p> <p>When using session recovery, specify "true" to make the deployed user application the session recovery target. The default value is "false".</p> <p>Specify these options in the following format:</p> <pre>--availabilityenabled={true false}</pre>

For examples of these settings, refer to ["4.10.3 Session Registry Client Settings"](#).

Operands

Operand name	Omission	Description
dirpath	Not possible	Specify the deployment target directory.

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- deploydir can only be used when the target domain is on the same machine.
- If the web service application is included in the deployment target file specified in the filepath operand, the configure-webservice-management command must be executed before the web service definition items are operated using the get/list command. For details, refer to "[10.19.1.4 Definition Items of the applications.web-module](#)".
- To redeploy an application whose archive has been expanded to multiple targets when the deploy subcommand is used, specify domain for the target. If domain is not specified, an error will occur.
- Multiple deploy/undeploy operations cannot be executed at the same time. If a new deployment/undeployment operation is submitted before the current deployment/undeployment operation returns, the new operation will wait for the completion of the current operation.

Example

Execute as follows:

```
> asadmin deploydir --target IJServer001 C:\work\sample  
Command deploydir executed successfully.
```

10.1.8.3 get-client-stubs Subcommand

Synopsis

```
get-client-stubs [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]  
[--user admin_user] [--passwordfile file_name] [--help] --appname application_name local_directory_path
```

Description

Obtain the stub files used by the client of the EJB application deployed in the Interstage Java EE DAS service instance/IJServer cluster. For details on the client stub JAR file configuration, refer to "Java EE Application Client Operations", "Download the client stub JAR File" in the "Java EE Application Operation" chapter.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--appname	None	Specify the application name of the target that obtains the stub.

Operands

Operand name	Omission	Description
local_directory_path	Not possible	Specify the local directory path where the stub file is stored.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin get-client-stubs --appname sample C:\temp
Command get-client-stubs executed successfully.
```

10.1.8.4 undeploy Subcommand

Synopsis

```
undeploy [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--droptables[=true|=false]] [--cascade[=true|=false]] --target target component_name
```

Description

This undeploys the deployed application.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--droptables	None	In case the tables that are mapped to Java Persistence Entities included in the application have been created using --createtables, --dropandcreatetables or persistence.xml's persistent unit property toplink.ddl-generation at deployment, specify whether these tables are deleted or not. If omitted, the tables are only deleted if drop-and-create-tables was specified as value to persistence.xml's persistent unit property toplink.ddl-generation. If both this option and the toplink.ddl-generation persistence unit property in persistence.xml are specified, then this option will have the higher priority. For details, refer to "Functionality for the Automatic Generation of Database Tables".

Option name	Mnemonic name	Description
		Before using this function, the environment settings of the JDBC driver must be set in the Interstage Java EE DAS service. For details on how to set the environment, refer to "Environment settings of the JDBC driver".
--cascade	None	Specify whether to delete the definition information of the resource adapter and related connector connection pools, connector resources, Admin object resources, and resource adapter definition information. This option is valid only when Connector Module(.rar) is deployed as a stand-alone.
--force	None	This undeploys the application after all the application and target associations are cleared.
--target	None	Specify the Interstage Java EE DAS service instance name/IJServer cluster name/domain of the application to undeploy.

Operands

Operand name	Omission	Description
component_name	Not possible	Specify the application name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- If domain is specified for the target and the archive expansion to the application target remains, the undeployment will fail. Cancel archive expansions to all targets using the delete-application-ref subcommand, then execute the undeployment.
- Multiple deploy/undeploy operations cannot be executed at the same time. If a new deployment/undeployment operation is submitted before the current deployment/undeployment operation returns, the new operation will wait for the completion of the current operation.

Example

Execute as follows:

```
> asadmin undeploy --target IJServer001 sample
Command undeploy executed successfully.
```

10.1.8.5 create-application-ref Subcommand

Synopsis

```
create-application-ref [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target [--enabled[=true|=false]] reference_name
```

Description

This adds the application and target association, and expands the application archive to the target.

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the Interstage Java EE DAS service instance name ("server")/IJSERVER cluster name to archive expand the application.
--enabled=true	None	Specify whether to enable the application after deployment. The default value is true. Note that the value specified for this value will be ignored at the time of the redeployment.

Options that can Only be Used in Session Recovery

Option name	Mnemonic name	Description
--virtualservers	None	This option can only be used with session recovery. Additionally, it is not displayed in the Help message. When using session recovery, select the deployment destination virtual server. <ul style="list-style-type: none"> - To deploy the application for control: "__sessionrecovery" - To deploy the user application: "server" Specify these options in the following format: --virtualservers={__sessionrecovery server}

For examples of these settings, refer to ["4.10.3 Session Registry Client Settings"](#).

Operands

Operand name	Omission	Description
reference_name	Not possible	Application name

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-application-ref --target IJSERVER001 sample
Command create-application-ref executed successfully.
```

10.1.8.6 delete-application-ref Subcommand

Synopsis

```
delete-application-ref [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target [--cascade[=true|=false]] reference_name
```

Description

This cancels the application and target association, and cancels the archive expansion of the application to the target.

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the Interstage Java EE DAS service instance name ("server")/ IJServer cluster name to cancel archive expansion of the application.
--cascade	None	Specify whether to recursively delete application-ref of the module which has dependency on the connector module. The default is false.

Operands

Operand name	Omission	Description
reference_name	Not possible	Application name

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin delete-application-ref --target IJServer001 sample
Command delete-application-ref executed successfully.
```

10.1.8.7 list-application-refs Subcommand

Synopsis

```
list-application-refs [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] target
```

Description

This lists the applications for which the archives have been expanded to the target for the specified argument.

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Not possible	Specify the Interstage Java EE DAS service instance name ("server")/ IJServer cluster name.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-application-refs IJServer001
__ejb_container_timer_app
WSTCPCConnectorLCModule
MEjbApp
WSTXServices
sample
__JWSappclients
JBIFramework
Command list-application-refs executed successfully.
```

10.1.8.8 enable Subcommand

Synopsis

```
enable [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target_name component
```

Description

Enable the application deployed in the Interstage Java EE DAS service instance/IJServer cluster or lifecycle module.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-P	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the Interstage Java EE DAS service instance name/IJServer cluster name, server instance name or domain.

Operands

Operand name	Omission	Description
component_name	Not possible	Specify the target application or lifecycle module name.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin enable --target IJServer001 sample  
Command enable executed successfully.
```

10.1.8.9 disable Subcommand

Synopsis

```
disable [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user  
admin_user] [--passwordfile file_name] [--help] --target target_name component
```

Description

This disables the application which has been deployed as a target, or the lifecycle module.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the Interstage Java EE DAS service instance name/IJServer cluster name, server instance name or domain.

Operands

Operand name	Omission	Description
component_name	Not possible	Specify the target application or lifecycle module name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin disable --target IJServer001 sample
Command disable executed successfully.
```

10.1.9 Subcommands - Category: Web Server Connector



Note

To execute subcommands which have relevance to the web server connector, it will be necessary to start the Interstage JMX service.

10.1.9.1 create-web-server-ref Subcommand

Synopsis

```
create-web-server-ref [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target web_server_name
```

Description

Add the web server that the IJServer cluster is linked to.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the settings target IJServer cluster name or the Interstage Java EE DAS service instance name (server).

Operands

Operand name	Omission	Description
web_server_name	Not possible	Specify the web server to be linked to.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-web-server-ref --target IJServer001 FJapache
Command create-web-server-ref executed successfully.
```

10.1.9.2 delete-web-server-ref Subcommand

Synopsis

```
delete-web-server-ref [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target web_server_name
```

Description

Release the link between the IJServer cluster and the web server.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--target	None	Specify the settings target IJServer cluster name or the Interstage Java EE DAS service instance name (server).

Operands

Operand name	Omission	Description
web_server_name	Not possible	Specify the web server to which the link is released.

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

If the link with the web server is released, the link between the virtual host and the IJServer cluster that was set in this web server is also released.

Example

Execute as follows:

```
> asadmin delete-web-server-ref --target IJServer001 FJapache
Command delete-web-server-ref executed successfully.
```

10.1.9.3 list-web-server-refs Subcommand

Synopsis

```
list-web-server-refs [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target
```

Description

Displays the web server that the IJServer cluster is linked to.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the display target IJServer cluster name or the Interstage Java EE DAS service instance name (server).

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-web-server-refs --target IJServer001
FJapache
web001
Command list-web-server-refs executed successfully.
```

10.1.9.4 create-virtual-host-ref Subcommand

Synopsis

```
create-virtual-host-ref [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target --webserver web_server_name virtual_host_name
```

Description

Add the web server virtual host that the IJServer cluster is linked to.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the settings target IJServer cluster name or the Interstage Java EE DAS service instance name (server).
--webserver	None	Specify the web server that the virtual host that is specified by the operand belongs to.

Operands

Operand name	Omission	Description
virtual_host_name	Not possible	Specify the virtual host to be linked to.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-virtual-host-ref --target IJServer001 --webserver FJapache 192.168.1.1:81/virtualhost1  
Command create-virtual-host-ref executed successfully.
```

10.1.9.5 delete-virtual-host-ref Subcommand

Synopsis

```
delete-virtual-host-ref [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target --webserver web_server_name virtual_host_name
```

Description

Releases the link between the IJServer cluster and web server virtual host.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the settings target IJServer cluster name or the Interstage Java EE DAS service instance name (server).
--webserver	None	Specify the web server that the virtual host that is specified by the operand belongs to.

Operands

Operand name	Omission	Description
virtual_host_name	Not possible	Specify the virtual host that the link is released.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin delete-virtual-host-ref --target IJServer001 --webserver FJapache 192.168.1.1:81/virtualhost1  
Command delete-virtual-host-ref executed successfully.
```

10.1.9.6 list-virtual-host-refs Subcommand

Synopsis

```
list-virtual-host-refs [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target --webserver web_server_name
```

Description

Displays the web server virtual host that the IJServer cluster is linked to.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the display target IJServer cluster name or the Interstage Java EE DAS service instance name (server).
--webserver	None	Specify the web server.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-virtual-host-refs --target IJServer001 --webserver FJapache
192.168.1.1:81/virtualhost1
192.168.1.1:81/virtualhost2
Command list-virtual-host-refs executed successfully.
```

10.1.9.7 update-web-server-connector-config Subcommand

Synopsis

```
update-web-server-connector-config [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--sendreceive timeout=sendreceive_time_out] [--maxprocessors=max_processors] --target target
```

Description

Updates the web server connector environment of the IJServer cluster.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--sendreceivetimeout	None	Specify the sending/receiving timeout (unit: milliseconds) within the range 1-2147483647 (Time to terminate the communication if the communication with the web container was interrupted). If omitted, this setting will not be updated.
--maxprocessors	None	Specify the maximum connection to the web container within the range 0-2048. If 0 is specified, it will become infinite. If omitted, this setting will not be updated.
--target	None	Specify the settings target IJServer cluster name or the Interstage Java EE DAS service instance name (server).

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin update-web-server-connector-config --sendreceivetimeout=600 --target IJServer001  
Command update-web-server-connector-config executed successfully.
```

10.1.9.8 show-web-server-connector-config Subcommand

Synopsis

```
show-web-server-connector-config [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target
```

Description

Displays the web server connector environment of the IJServer cluster

The values displayed are as follows:

- sendreceivetimeout :Send Received Timeout
- maxprocessors : Maximum connections to the web container

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the display target IIServer cluster name or the Interstage Java EE DAS service instance name (server).

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin show-web-server-connector-config --target IIServer001
sendreceive timeout = 600
maxprocessors = 0
Command show-web-server-connector-config executed successfully.
```

10.1.10 Subcommands - Category: Listener

10.1.10.1 list-iiop-listeners Subcommand

Synopsis

```
list-iiop-listeners [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] target
```

Description

Lists the IIOP listeners.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Not possible	Specify the setting name, the IJServer cluster name, the server instance name or the Interstage Java EE DAS service instance name (server).

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-iiop-listeners IJServer001
orb-listener-1
SSL
SSL_MUTUALAUTH
Command list-iiop-listeners executed successfully.
```

10.1.11 Subcommands - Category: Thread Pool

10.1.11.1 create-threadpool Subcommand

Synopsis

```
create-threadpool [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target [--maxthreadpoolsize max_thread_pool_size] [--minthreadpoolsize min_thread_pool_size] [--idletimeout idle_thread_timeout_in_seconds] threadpool_id
```

Description

Create the thread pool. The thread pool can be used to execute IIOP requests and work from resource adapters. Multiple EJB applications and resource adapters can share a thread pool.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the setting name, the IJServer cluster name or the Interstage Java EE DAS service instance name (server).
--maxthreadpoolsize	None	Specify the maximum value of the thread pool size. The default value is 200.
--minthreadpoolsize	None	Specify the initial value of the thread pool size and the minimum size. The default value is 0.
--idletimeout	None	Specify the longest time (unit: milliseconds) that the thread in the pool can be idle. The default value is 120 seconds.

Operands

Operand name	Omission	Description
threadpool_id	Not possible	Specify the thread pool ID.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-threadpool --target IJServer001 --maxthreadpoolsize 100 --minthreadpoolsize 20 --idletimeout 600 priority-A
Command create-threadpool executed successfully.
```

10.1.11.2 delete-threadpool Subcommand

Synopsis

```
delete-threadpool [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target threadpool_id
```

Description

Delete the thread pool.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the setting name, the IJServer cluster name or the Interstage Java EE DAS service instance name (server).

Operands

Operand name	Omission	Description
threadpool_id	Not possible	Specify the thread pool ID.

Return value

0: Ended normally

1: Ended abnormally

Notes

A thread pool that is currently used by the IJServer cluster specified by the --target option cannot be deleted.

Example

Execute as follows:

```
> asadmin delete-threadpool --target IJServer001 priority-A
Command delete-threadpool executed successfully.
```

10.1.11.3 list-threadpools Subcommand

Synopsis

```
list-threadpools [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]
[--user admin_user] [--passwordfile file_name] [--help] target
```

Description

List the thread pool

For details on the asadmin command, refer to ["10.1 asadmin"](#).

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Not possible	Specify the setting name, the IJServer cluster name, the server instance name or the Interstage Java EE DAS service instance name (server).

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-threadpools IJServer001
thread-pool-1
priority-A
Command list-threadpools executed successfully.
```

10.1.12 Subcommands - Category: Web service

10.1.12.1 configure-webservice-management Subcommand

Synopsis

```
configure-webservice-management [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--monitoring {OFF|LOW|HIGH}] [--maxhistorysize size] webservice_name
```

Description

Change the monitoring level and the retention count of the communication message log of a deployed web service. The following can be set for the monitoring level.

Level	Information to be collected		
	Operational statistics of the web service	SOAP communication message where an error is returned	SOAP communication message of a call that succeeded
OFF	Do not collect	Do not collect	Do not collect
LOW	Collect	Do not collect	Do not collect
HIGH	Collect	Collect	Collect



Note

"HIGH" is for the investigation of troubles during development or of the system with an extremely low volume of calls. Do not specify this level for a web service that has a large call volume as it may cause performance deterioration. If "HIGH" is set, then the SOAP communication messages will be saved in memory, and you will need enough memory to retain them. Limit the size of requests accepted

in the web service so that there is enough memory when large requests are received. For details, refer to "Customizing the Web Service Operating Environment".

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--monitoring	None	Specify the monitoring level. The default value is OFF.
--maxhistorysize	None	Specify an integer from 1-2147483647 for the number of retained communication message logs. The default value is 25.

Operands

Operand name	Omission	Description
webservice-name	Not possible	Specify the target web service in the following text format: <ul style="list-style-type: none"> - If deployed in an EAR module: application name #module name#Endpoint name - If deployed as a single unit (not as WAR or ejb-jar included in an EAR): applicationname#Endpoint name

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
>asadmin configure-webservice-management --monitoring HIGH --maxhistorysize 10
MyModule#MyWebService
Command configure-webservice-management executed successfully.
```

10.1.13 Subcommands - Category: Transaction

10.1.13.1 freeze-transaction-service Subcommand

Synopsis

```
freeze-transaction-service [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target
```

Description

Freeze the transactions currently running. Transactions that are already frozen are not frozen again.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the server instance name.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin freeze-transaction-service --target IJServer001-1  
Command freeze-transaction-service executed successfully.
```

10.1.13.2 unfreeze-transaction-service Subcommand

Synopsis

```
unfreeze-transaction-service [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target
```

Description

Unfreeze frozen transactions. Transactions that have not been frozen yet are not unfrozen.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the server instance name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin unfreeze-transaction-service --target IJServer001-1
Command unfreeze-transaction-service executed successfully.
```

10.1.13.3 recover-transactions Subcommand

Synopsis

```
recover-transactions [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--txlogdir transaction_log_dir] [--destination destination_server_name] server_name
```

Description

Performs a recovery process of indoubt transactions.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--txlogdir	None	Specify the storage directory for transaction logs used for transaction recovery processing. This is used when you want to specify a different directory to the definition value that was specified for transaction service definition transaction log location (tx-log-dir).
--destination	None	Specify an alternate server instance name to perform recovery from the alternate server instance while the server instance specified with the operand is down. The transaction log storage location that is used for recovery can be specified in the -txlogdir option.

Operands

Operand name	Omission	Description
server_name	Not possible	Specify the instance name of the server instance in which the transaction that must be recovered exists.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin recover-transactions IJServer001-1
Command recover-transactions executed successfully.
```

10.1.13.4 rollback-transaction Subcommand

Synopsis

```
rollback-transaction [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target transaction_id
```

Description

Mark the transaction under execution for roll back. The transaction that is marked for roll back is rolled back when the transaction is ended. By freezing the target transaction before executing this command, it can be prevented to roll back an incorrect transaction.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the server instance name.

Operands

Operand name	Omission	Description
transaction_id	Not possible	Specify the transaction ID of the transaction to mark for roll back. When multiple transaction IDs are specified, put a colon (':') between each transaction ID.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin rollback-transaction --target IJServer001-1 0000000000000001
Command rollback-transaction executed successfully.
```

10.1.13.5 list-transactions Subcommand

Synopsis

```
list-transactions [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]
[--user admin_user] [--passwordfile file_name] [--help] [--detail[=true|=false]] target
```

Description

This lists information about the transaction which is running.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--detail	-d	Specify whether to display details about the transaction.

Option name	Mnemonic name	Description
		If true is set, details about the transaction will be displayed. If this option is omitted, the default value will be "false".

Operands

Operand name	Omission	Description
target	Not possible	Specify the server instance name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

- When the "--detail" option is not specified

An example of the result of the execution is as follows:

```
> asadmin list-transactions instance1
List of the transactions:
No(1) ID(2)                                     status(3)
1      00000000000000000008_00                    Active
2      0700000021A0FD38666E73742D6C696E7A672C7365727665722C503233363030
Active
Command list-transactions executed successfully.
```

- When the "--detail" option is specified

An example of the result of the execution is as follows:

```
> asadmin list-transactions --detail=true instance1
List of the transactions:
-----
--
[No 1](1)
ID          :00000000000000000008_00(2)
Status      :Active(3)
ElapsedTime(ms) :48204(4)
ComponentName :com.fujitsu.interstage.j2eesamples.servlet.(5)
ResourceNames :jdbc.ServletJdbcDelete(6)
-----
--
[No 2](1)
ID          :
0700000021A0FD38666E73742D6C696E7A672C7365727665722C503233363030(2)
Status      :Active(3)
ElapsedTime(ms) :18891(4)
ComponentName :com.fujitsu.interstage.j2eesamples.servlet.jdbc.ServletJdbc
Delete(5)
ResourceNames :jdbc/localderby, jdbc/__TimerPool(6)
-----
-
Command list-transactions executed successfully.
```

- When the results list is empty

An example of the result of the execution is as follows:

```
> asadmin list-transactions instance1
Nothing to list.
Command list-transactions executed successfully.
```

The detail which is output is shown in the table below.

Number	Item name	Meaning	Description
(1)	No	Transaction list number	The transaction list number is displayed.
(2)	ID	Transaction ID	<p>The transaction ID of the transaction is displayed.</p> <p> Note</p> <p>.....</p> <p>Note: The transaction ID is displayed as 25 digits by default. If 25 digits are exceeded, the actual transaction ID digits will be displayed.</p> <p>.....</p>
(3)	Status	Transaction status	<p>The transaction status values are as follows:</p> <ul style="list-style-type: none"> - Active - MarkedRollback - Prepared - UnKnown - Preparing - Committing - RollingBack
(4)	ElapsedTime(ms)	Elapsed time (in milliseconds)	The time which has elapsed since the transaction was started is displayed in milliseconds.
(5)	Component Name	Component name	<p>The component class name that started the transaction is displayed using the full package name.</p> <p>If the component type is EJB, the EJB Bean class is displayed.</p> <p>If the component type is Servlet, the servlet class is displayed.</p> <p>If the component type is JSP, "org.apache.jasper.servlet.JspServlet" is displayed.</p> <p> Note</p> <p>.....</p> <p>In EJB3.0, if the application that started the transaction does not implement java.io.Serializable using Stateful Session Bean, the component name is output in the format "package name._class name_Serializable".</p> <p>.....</p>
(6)	ResourceNames	Resource name	The name of the resource which participates in the transaction is displayed.

Notes

Before executing the list-transactions subcommand, it will be necessary to enable the transaction monitoring feature in the settings.

In the [Configuration] > [<cluster>] > [Monitoring] window of the Interstage Java EE Admin Console, set [Transaction Service] to "LOW" or "HIGH". Alternatively, use the asadmin command set subcommand to specify LOW or HIGH for [name that was set].monitoring-service.module-monitoring-levels.transaction-service.

10.1.14 Subcommands - Category: Resource

10.1.14.1 create-jdbc-connection-pool Subcommand

Synopsis

```
create-jdbc-connection-pool [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --datasourceclassname classname [--restype {javax.sql.DataSource|javax.sql.ConnectionPoolDataSource|javax.sql.XADataSource}] [--steadypoolsize value] [--maxpoolsize value] [--maxwait value] [--poolresize value] [--idletimeout value] [--isolationlevel {read-uncommitted|read-committed|repeatable-read|serializable}] [--isolationguaranteed[=true|=false]] [--isconnectvalidatereq[=true|=false]] [--validationmethod {rollback|table}] [--validationtable tablename] [--failconnection[=true|=false]] [--allownoncomponentcallers[=true|=false]] [--nontransactionalconnections[=true|=false]] [--description text] [--property name=value[:name=value]...] jdbc_connection_pool_id
```

Description

Create the JDBC connection pool.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--datasourceclassname	None	Specify the class name of the data source provided by the vendor.
--restype	None	Specify the interface that the data source class implements. Specify one of the following: <ul style="list-style-type: none">- javax.sql.DataSource- javax.sql.ConnectionPoolDataSource- javax.sql.XADataSource There is no default.
--steadypoolsize	None	Specify the minimum number of the connections in the pool. This value also includes the number of connections in the pool when the pool was created first. The default is 8.

Option name	Mnemonic name	Description
--maxpoolsize	None	Specify the maximum connections in the pool. The default is 32.
--maxwait	None	Specify the waiting time (milliseconds) until the application that requests the connection is timed out. The default is 60000 (milliseconds). If 0 is specified, a timeout will not occur.
--poolresize	None	If the pool size is enlarged or reduced in proportion to the maximum pool size and the minimum pool size, the pool size is resized in one batch process. The value specified here is the number of connections processed in a batch. If the value is set at excessively high, the connection creation and reuse are delayed. If the value is set at excessively low, the efficiency will drop. From 1 till 2147483647 can be specified. The default is 2.
--idletimeout	None	Specify the longest time that the connection can remain in an idle state in the pool. If the time has elapsed, the connection is deleted from the pool. If 0 is specified, the connection cannot be deleted from the pool because of an idle timeout. The default is 300 seconds.
--isolationlevel	None	The transaction isolation level of the pool's connections can be specified from the following. If not specified, the default isolation level that is set by the JDBC driver is used. - read-uncommitted If the isolation level is TRANSACTION_READ_UNCOMMITTED - read-committed If the isolation level is TRANSACTION_READ_COMMITTED - repeatable-read If the isolation level is TRANSACTION_REPEATABLE_READ - serializable If the isolation level is TRANSACTION_SERIALIZABLE
--isolationguaranteed	None	This is applied only when the isolation level is specified. If true is specified, all connections obtained from the pool are set at the same isolation level. For instance, if the block level is altered by the setTransactionIsolation() method using a program that used the connection at the last, the isolation level will be restored to the previous value when the connection is returned to the pool. The default is true.
--isconnectvalidatereq	None	If true is specified, connection validation is enabled. The default is true.
--validationmethod	None	The application server can verify the database connection using the following two methods. The default is rollback. - rollback - table

Option name	Mnemonic name	Description
		<p>Each is verified as follows:</p> <ul style="list-style-type: none"> - rollback <p>The application server calls the rollback() method of the connection in order to verify the connection.</p> <ul style="list-style-type: none"> - table <p>The application inquires the specified database table. The table must exist and must be accessible, however, it does not need to contain rows. Do not use an existing table that has many lines or a table that is already frequently accessed.</p> <p> Note</p> <hr style="border-top: 1px dotted orange;"/> <p>If the connection which is to be verified is in the container transaction, the connection will not be verified.</p> <p>If the database is Symfoware Server, it may not be possible to discover invalid database connections using the rollback validation method, therefore it is recommended that the invalid database connections be detected using Connection Manager. When using Connection Manager, disable connection validation. For details on Connection Manager, refer to the Symfoware Server manual. If Connection Manager cannot be used, use the table validation method to execute connection validation.</p> <p>If the database is PowerGres Plus, invalid database connections cannot be discovered using the rollback validation method, therefore it is recommended that you use the table validation method to execute connection validation.</p> <hr style="border-top: 1px dotted orange;"/>
--validationtable	None	If table is selected in the --validationmethod option, specify the database table name here.
--failconnection	None	If true is specified and one connection fails, the application server closes all connections in the pool and reestablishes them. If false is specified, each connection is reestablished only when it is used. The default is false.
--allownoncomponentcallers	None	<p>This enables the pool to be used by non- component callers, such as lifecycle modules.</p> <p>If this option is specified, the connection is pooled for non-Java EE component classes (lifecycle modules, etc.) or Servlet filters. If this option is not specified, the connection is not pooled. The default is false.</p>
--nontransactionalconnections	None	If true is specified, non-transactional connections are returned. The default is false.
--description	None	Provide a description for the data source.
--property	None	<p>Specify the necessary properties such as database name (URL), user name and password by linking "property name=value" pairs by colons (:). For details on characters used in the property names and values that may required escaping, refer to "Using Escape Characters".</p> <p>If the property value type is java.util.Properties, the value is specified in the property in the format</p>

Option name	Mnemonic name	Description
		"{[name=value[,name=value]...] } ". Special characters (', '=') cannot be used for name and value. Since the required properties differ by database vendor, refer to the vendor manual for details.

Operands

Operand name	Omission	Description
jdbc_connection_pool_id	Not possible	Specify a unique JDBC connection pool name.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-jdbc-connection-pool --datasourceclassname
com.fujitsu.symfoware.jdbc2.SYMConnectionPoolDataSource --restype javax.sql.ConnectionPoolDataSource
--property
networkProtocol=symford;portNumber=2050;password=sympass:user=symuser:serverName=dbhost:databaseName=symbd
sample_symfo_pool
Command create-jdbc-connection-pool executed successfully.
```

10.1.14.2 delete-jdbc-connection-pool Subcommand

Synopsis

```
delete-jdbc-connection-pool [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--cascade[=true|=false]] jdbc_connection_pool_id
```

Description

Delete the JDBC connection pool.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--help	-?	Refer to "asadmin Command Common Options".
--cascade	None	Determines whether to delete the JDBC resources associated with the JDBC connection pool. An error will occur if 'false' is specified and there are associated JDBC resources. The default is 'false'.

Operands

Operand name	Omission	Description
jdbc_connection_pool_id	Not possible	Specify the JDBC connection pool name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin delete-jdbc-connection-pool sample_symfo_pool
Command delete-jdbc-connection-pool executed successfully.
```

10.1.14.3 list-jdbc-connection-pools Subcommand

Synopsis

```
list-jdbc-connection-pools [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help]
```

Description

Obtain the list of the JDBC connection pools.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-jdbc-connection-pools
sample_symfo_pool
Command list-jdbc-connection-pools executed successfully.
```

10.1.14.4 ping-connection-pool Subcommand

Synopsis

```
ping-connection-pool [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] jdbc_connection_pool_id
```

Description

Pings the JDBC connection pool. For details, refer to "Ping Functionality".

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
jdbc_connection_pool_id	Not possible	Specify the JDBC connection pool name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin ping-connection-pool sample_symfo_pool
Command ping-connection-pool executed successfully.
```

10.1.14.5 create-jdbc-resource Subcommand

Synopsis

```
create-jdbc-resource [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --connectionpoolid jdbc_connection_pool_id [--enabled[=true|=false]] [--description text] [--target target] [--property name=value[:name=value]...] jndi_name
```

Description

Creates the JDBC resource.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--connectionpoolid	None	Specify the JDBC connection pool name linked to the JDBC resource.
--enabled	None	To disable the resource, specify false. The default is true.
--description	None	Provide a description for the data source.
--target	None	Specify the reference destination of the JDBC resource (IJSERVER cluster name, "server" or "domain"). The default is "domain". If the reference destination is not specified here or the reference destination is added after creating the resource, specify the reference destination by the following. <ul style="list-style-type: none">- Interstage Java EE Admin console- asadmin command create-resource-ref subcommand For how to select the reference destination, refer to "Procedure for Selecting the Target that uses a Resource".
--property	None	There are no properties that can be specified in this version.

Operands

Operand name	Omission	Description
jndi_name	Not possible	Specify a JDBC resource name that is unique in the JNDI name space.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-jdbc-resource --target IJServer001 --connectionpoolid sample_symfo_pool jdbc/symfo  
Command create-jdbc-resource executed successfully.
```

10.1.14.6 delete-jdbc-resource Subcommand

Synopsis

```
delete-jdbc-resource [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--target target] jndi_name
```

Description

Delete the JDBC resource.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the reference destination of the JDBC resource (IJServer cluster name, "server" or "domain"). The default is "domain".

Operands

Operand name	Omission	Description
jndi_name	Not possible	Specify the JDBC resource name.

Return value

0: Ended normally

1: Ended abnormally

Notes

- If there are multiple reference destinations referenced, the command execution will fail. Delete the added reference destinations using the asadmin command `delete-resource-ref` subcommand, and then execute it again.
- If the target option is omitted, only a JDBC resource with no reference destination can be deleted.

Example

Execute as follows:

```
> asadmin delete-jdbc-resource --target IJServer001 jdbc/symfo
Command delete-jdbc-resource executed successfully.
```

10.1.14.7 list-jdbc-resources Subcommand

Synopsis

```
list-jdbc-resources [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [target]
```

Description

Obtain a list of the JDBC resources.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Possible	Specify the reference destination of the JDBC resource (IJServer cluster name, server instance name, "server" or "domain"). The default is "domain".

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-jdbc-resources IJServer001
jdbc/_TimerPool
jdbc/_default
jdbc/_cmp
jdbc/symfo
Command list-jdbc-resources executed successfully.
```

10.1.14.8 create-jms-resource Subcommand

Synopsis

```
create-jms-resource [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --restype resource_type [--enabled[=true|=false]] [--description text] [--property name=value[:name=value]...] [--target target] jndi_name
```

Description

Creates the JMS connection factory or the JMS send destination resources.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--restype	None	Enter the fully qualified class name. Specify one of the following: <ul style="list-style-type: none"> - javax.jms.ConnectionFactory - javax.jms.TopicConnectionFactory - javax.jms.QueueConnectionFactory - javax.jms.Topic - javax.jms.Queue
--enabled	None	Specify false to disable the resource. By default, the resource can be used when it is created.
--description	None	Provide a description for the resource.
--property	None	Specify properties to be added by separating the "property name=value" pairs by a colon (:).
--target	None	Specify the JMS connection factory or JMS Destination (IIServer cluster name, "server" or "domain"). The default is "domain". If the reference destination is not specified here or the reference destination is added after creating the resource, specify the reference destination by the following. <ul style="list-style-type: none"> - Interstage Java EE Admin console - asadmin command create-resource-ref_subcommand For how to select the reference destination, refer to "Procedure to select the target that uses the resource".

Operands

Operand name	Omission	Description
jndi_name	Not possible	Specify a name that is unique in the JNDI name space.

Properties

The following properties can be set for the JMS connection factory.

Property name	Description
ClientId	Specify the connection factory client ID to be used by the durable subscriber.
UserName	Specify the connection factory user name. The default is "guest".
Password	Specify the connection factory password. The default is "guest".

The following properties can be set for the JMS send destination resources.

Property name	Description
Name	<p>Specify the physical destination to which the JMS send destination resources refers. The physical destination is created using the imqcmd command create dst subcommand.</p> <p>If this property is omitted, the name of the physical storage destination that is the target of the JMS send destination resources will be the value specified in the "jndi_name" operand.</p> <p>However, if any of the characters shown below are included in the "jndi_name" operand, the character will be replaced with an underscore ('_') in the physical storage destination name.</p> <ul style="list-style-type: none">- A number specified as the first character- A space character- Symbols except an underscore ('_') or dollar sign ('\$') <p>For example, when the "jndi_name" operand is "001jms@Queue", the physical storage destination name will be "_01jms_Queue".</p>
Description	Provide a description for the physical destination.

Return value

0: Ended normally

1: Ended abnormally

Example

To create the JMS connection factory, execute the following command:

```
> asadmin create-jms-resource --restype javax.jms.TopicConnectionFactory --description "example of creating a JMS connection factory" --property ClientId=MyID --target IJServer001 jms/MyConnectionFactory
Command create-jms-resource executed successfully.
```

To create the JMS send destination resources, execute the following command:

```
> asadmin create-jms-resource --restype javax.jms.Topic --description "example of creating a JMS topic" --property Name=MyTopic --target IJServer001 jms/MyTopic
Command create-jms-resource executed successfully.
```

10.1.14.9 delete-jms-resource Subcommand

Synopsis

```
delete-jms-resource [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--target target] jndi_name
```

Description

Delete the JMS connection factory or the JMS send destination resources.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the JMS connection factory or JMS send destination references (IIServer cluster name, "server" or "domain"). The default is "domain".

Operands

Operand name	Omission	Description
jndi_name	Not possible	Specify the name of the JNDI resource to be deleted.

Return value

0: Ended normally

1: Ended abnormally

Notes

- If there are multiple reference destinations referenced, the command execution will fail. Delete the added reference destinations using the asadmin command [delete-resource-ref](#) subcommand, and then execute it again.
- If the target option is omitted, only a JMS connection factory or JMS send destination references with no reference destination can be deleted.

Example

Execute as follows:

```
> asadmin delete-jms-resource --target IIServer001 jms/MyConnectionFactory  
Command delete-jms-resource executed successfully.
```

10.1.14.10 list-jms-resources Subcommand

Synopsis

```
list-jms-resources [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--restype resource_type] [target]
```

Description

Obtains a list of the JMS connection factories and JMS send destination resources.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--restype	None	Enter the fully qualified class name. Specify one of the following. <ul style="list-style-type: none">- javax.jms.ConnectionFactory- javax.jms.TopicConnectionFactory- javax.jms.QueueConnectionFactory- javax.jms.Topic- javax.jms.Queue

Operands

Operand name	Omission	Description
target	Possible	Specify the JMS connection factory or JMS send destination references (JServer cluster name, server instance name, "server" or "domain").

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-jms-resources JServer001
jms/MyTopicCF
jms/MyQueueCF
Command list-jms-resources executed successfully.
```

10.1.14.11 create-jndi-resource Subcommand

Synopsis

```
create-jndi-resource [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--target target] --jndilookupname lookup_name --restype type --factoryclass class_name [--enabled[=true|=false]] [--description text] [--property name=value[:name=value]...] jndi_name
```

Description

Create the external resource.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the reference destination (JServer cluster name, "server" or "domain") of the external resource. The default is "domain". If the reference destination is not specified here or the reference destination is added after creating the resource, specify the reference destination by the following. <ul style="list-style-type: none"> - Interstage Java EE Admin console - asadmin command create-resource-ref subcommand For how to select a reference destination, refer to "Procedure to Select the Target that uses the Resource".
--jndilookupname	None	Enter the JNDI name used for the external repository search.
--restype	None	Enter the object format in the fully modified format (e.g.: javax.jms.Topic).
--factoryclass	None	Specify the factory class resource. The javax.naming.spi.InitialContextFactory must be implemented.
--enabled	None	To disable the resource, specify false. By default, the resource can be used at the same time it is created.
--description	None	Provide a description for the resource.
--property	None	Specify the property to be added by separating the "property name=value" pair by a colon (:).

Operands

Operand name	Omission	Description
jndi_name	Not possible	Specify a name that is unique in the JNDI name space.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-jndi-resource --target IJServer001 --jndilookupname MyName --restype  
com.mycompany.Widget --factoryclass com.mycompany.WidgetExternalFactory WidgetExternal  
Command create-jndi-resource executed successfully.
```

10.1.14.12 delete-jndi-resource Subcommand

Synopsis

```
delete-jndi-resource [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--target target] jndi_name
```

Description

Delete the external resource.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the reference destination (IJServer cluster name, "server" or "domain") of the external resource. The default is "domain".

Operands

Operand name	Omission	Description
jndi_name	Not possible	Specify the JNDI name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- If there are multiple reference destinations referenced, the command execution will fail. Delete the added reference destinations using the asadmin command `delete-resource-ref` subcommand, and then execute it again.
- If the target option is omitted, only an external resource with no reference destination can be deleted.

Example

Execute as follows:

```
> asadmin delete-jndi-resource --target IJServer001 WidgetExternal
Command delete-jndi-resource executed successfully.
```

10.1.14.13 list-jndi-resources Subcommand

Synopsis

```
list-jndi-resources [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [target]
```

Description

Obtain the list of external resources.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Possible	Specify the reference destination (IJServer cluster name, server instance name, "server" or "domain") of the external resource. The default is "domain".

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-jndi-resources IJServer001
WidgetExternal1
WidgetExternal2
WidgetExternal3
Command list-jndi-resources executed successfully.
```

10.1.14.14 list-jndi-entries Subcommand

Synopsis

```
list-jndi-entries [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]
[--user admin_user] [--passwordfile file_name] [--help] [--context context_name] [target]
```

Description

Display the JNDI tree.

For details on the asadmin command, refer to ["10.1 asadmin"](#).

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--context	None	Specify the context of the object to be displayed. For instance, if the JNDI name is jdbc/symfoDS and jdbc is specified, the symfoDS information is displayed. If omitted, the information of the root context (the top context) is displayed.

Operands

Operand name	Omission	Description
target	Possible	Specify the name of the started server instance or the Interstage Java EE DAS service instance name ("server"). If the server instance that has not started is specified, an error will occur. The default is "server". The object registered in the specified instance is displayed.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows: A list of "Object name:Class name" is displayed after the message "Jndi Entries for target name within the context name context:". For details on the class name, refer to the Description of the "JNDI browse" in the "Naming service".

```

> asadmin list-jndi-entries --context jdbc IJServer001-1
Jndi Entries for IJServer001-1 within jdbc context:
__default: javax.naming.Reference
OraDS__pm: javax.naming.Reference
__default__pm: javax.naming.Reference
OraDS: javax.naming.Reference
__cmp: javax.naming.Reference
__cmp__pm: javax.naming.Reference
Command list-jndi-entries executed successfully.

```

10.1.14.15 create-javamail-resource Subcommand

Synopsis

```

create-javamail-resource [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --mailhost hostname --mailuser username --fromaddress address [--storeprotocol imap] [--storeprotocolclass com.sun.mail.imap.IMAPStore] [--transprotocol smtp] [--transprotocolclass com.sun.mail.smtp.SMTPTransport] [--debug[=true|=false]] [--enabled[=true|=false]] [--description text] [--property name=value[:name=value]...] [--target target] jndi_name

```

Description

Creates the JavaMail session.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--mailhost	None	Specify the host name or address of the mail server to be used by default. The specified value is set for the Session Property mail.host.
--mailuser	None	Specify the login user ID of the mail server. The specified value is set for the Session Property mail.user.
--fromaddress	None	Specify the default user mail address. The specified value is set for the Session Property mail.from.
--storeprotocol	None	Specify the receive protocol to be used by default. Specify the following values: - imap: When IMAP is used (default) - pop3: When POP3 is used
--storeprotocolclass	None	Specify the class name of the receive protocol. Specify the following values: - com.sun.mail.imap.IMAPStore: When IMAP is used (default)

Option name	Mnemonic name	Description
		- com.sun.mail.pop3.POP3Store: When POP3 is used
--transprotocol	None	Specify the send protocol to be used by default. Specify the following value: - smtp: When SMTP is used (default)
--transprotocolclass	None	Specify the class name of the send protocol. Specify the following value: - com.sun.mail.smtp.SMTPTransport: When SMTP is used (default)
--debug	None	To output the debug information, specify true. If true is specified, true is set for the Session Property mail.debug.
--enabled	None	To disable the JavaMail session, specify false. The default is true.
--description	None	Provide a description of the JavaMail session. Any description can be used such as the purpose of use of the JavaMail session.
--property	None	Specify the Session Property key to be added by separating the "property name=value" pair by a colon (:). If the property that was specified and the general definition are duplicated, the property will be overwritten by this definition. For details on the values that can be specified, refer to the JavaMail API document.
--target	None	Specify the reference destination of the JavaMail session (JServer cluster name, "server" or "domain"). The default is "domain". If the reference destination is not specified here or the reference destination is added after creating the resource, specify the reference destination by the following. - Interstage Java EE Admin console - asadmin command create-resource-ref subcommand For how to select a reference destination, refer to "Procedure to select the target that uses the resource".

Operands

Operand name	Omission	Description
jndi_name	Not possible	Specify a Javamail session name that is unique in the JNDI namespace.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-javamail-resource --mailhost localhost --mailuser user00 --fromaddress user00@hosta.com --target IJServer001 mail/mail1
Command create-javamail-resource executed successfully.
```

10.1.14.16 delete-javamail-resource Subcommand

Synopsis

```
delete-javamail-resource [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--target target] jndi_name
```

Description

Delete the JavaMail session.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the reference destination of the JavaMail session (IIServer cluster name, "server" or "domain"). The default is "domain".

Operands

Operand name	Omission	Description
jndi_name	Not possible	Specify the JNDI name.

Return value

0: Ended normally

1: Ended abnormally

Notes

- If there are multiple reference destinations referenced, the command execution will fail. Delete the added reference destinations using the asadmin command `delete-resource-ref` subcommand, and then execute it again.
- If the target option is omitted, only a JavaMail session with no reference destination can be deleted.

Example

Execute as follows:

```
> asadmin delete-javamail-resource --target IIServer001 mail/mail1  
Command delete-javamail-resource executed successfully.
```

10.1.14.17 list-javamail-resources Subcommand

Synopsis

```
list-javamail-resources [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [target]
```

Description

Obtains the list of JavaMail resources.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Possible	Specify the reference destination of the JavaMail session (JServer cluster name, server instance name, "server" or "domain"). The default is "domain".

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-javamail-resources JServer001
mail/mail1
Command list-javamail-resources executed successfully.
```

10.1.14.18 create-custom-resource Subcommand

Synopsis

```
create-custom-resource [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--target target] --restype type --factoryclass classname [--enabled[=true|=false]] [--description text] [--property name=value[:name=value]...] jndi_name
```

Description

Create the custom resource.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the reference destination of the custom resource (IIServer cluster name, "server" or "domain"). The default is "domain". If the reference destination is not specified here or the reference destination is added after creating the resource, specify the reference destination by the following. <ul style="list-style-type: none">- Interstage Java EE Admin console- asadmin command create-resource-ref subcommand For how to select a reference destination, refer to "Procedure to select the target that uses the resource".
--restype	None	Enter the object format with the fully modified format.
--factoryclass	None	Specify the factory class resource. The javax.naming.spi.ObjectFactory must be implemented by the factory class.
--enabled	None	To disable the resource, specify false. The default value is true. By default, the resource can be used at the time it is created.
--description	None	Provide a description for the resource.
--property	None	Specify the property to be added by separating the "property name=value" pair by a colon (:).

Operands

Operand name	Omission	Description
jndi_name	Not possible	Specify a name that is unique in the JNDI name space.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-custom-resource --target IIServer001 --restype com.mycompany.Widget --factoryclass  
com.mycompany.WidgetFactory Widget  
Command create-custom-resource executed successfully.
```

10.1.14.19 delete-custom-resource Subcommand

Synopsis

```
delete-custom-resource [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--target target] jndi_name
```

Description

Delete the custom resource.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the reference destination of the custom resource (JServer cluster name, "server" or "domain"). The default is "domain".

Operands

Operand name	Omission	Description
jndi_name	Not possible	Specify the JNDI name.

Return value

0: Ended normally

1: Ended abnormally

Notes

- If there are multiple reference destinations referenced, the command execution will fail. Delete the added reference destinations using the asadmin command [delete-resource-ref](#) subcommand, and then execute it again.
- If the target option is omitted, only a custom resource with no reference destination can be deleted.

Example

Execute as follows:

```
> asadmin delete-custom-resource --target JServer001 Widget  
Command delete-custom-resource executed successfully.
```

10.1.14.20 list-custom-resources Subcommand

Synopsis

```
list-custom-resources [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [target]
```

Description

Obtain a custom resource list.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Possible	Specify the reference destination of the custom resource (IJSERVER cluster name, server instance name, "server" or "domain"). The default is "domain".

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-custom-resources IJSERVER001
Widget1
Widget2
Widget3
Command list-custom-resources executed successfully.
```

10.1.14.21 create-connector-connection-pool Subcommand

Synopsis

```
create-connector-connection-pool [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--steadypoolsize steady_pool_size] [--maxpoolsize max_pool_size] [--maxwait max_wait_time_in_millis] [--poolresize pool_resize_quantity] [--idletimeout idle_timeout_in_seconds] [--failconnection[=true|=false]] --raname resource_adapter_name --connectiondefinition connection_definition_name [--transactionsupport {XATransaction|LocalTransaction|NoTransaction}] [--isconnectvalidatereq[=true|=false]] [--description text] [--property name=value[:name=value]...] connector_connection_pool_name
```

Description

Creates the Connector connection pool.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--steadypoolsize	None	Specify the initial/minimum pool size. The default value is 8.
--maxpoolsize	None	Specify the maximum pool size. The default value is 32.
--maxwait	None	Specify the maximum waiting time (in milliseconds). The default value is 60000.
--poolresize	None	Specify the pool resize value. The default value is 2.
--idletimeout	None	Specify the idle timeout (in milliseconds). The default value is 300.
--failconnection	None	Enable "On Any Failure" function. The default is disabled.
--raname	None	Specify the resource adapter name.
--connectiondefinition	None	Specify the connection definition name.
--transactionsupport	None	Specify the transaction support level. This is only valid when it is equal to or lower than the level described in ra.xml. If a level higher than the one described in ra.xml is specified, then an error will be output to the server log when the JServer cluster or Interstage Java EE DAS service starts up. <ul style="list-style-type: none">- XATransaction If XA transaction is specified- LocalTransaction If local transaction is specified- NoTransaction If non-transaction is specified
--isconnectvalidatereq	None	Specify the connection validation function. The default value is false.

Option name	Mnemonic name	Description
--description	None	Provide a description of the connector connection pool.
--property	None	Specify properties for the ManagedConnectionFactory JavaBean instance by separating "property name=value" pairs by a colon (:).

Operands

Operand name	Omission	Description
connector_connection_pool_name	Not possible	Specify the name of the connector connection pool.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-connector-connection-pool --steadypoolsize 10 --maxpoolsize 80 --maxwait 30000 --poolresize 5 --rename sampleRar --connectiondefinition javax.resource.cci.ConnectionFactory --property prop1=value1:prop2=value2 eis/connectionPool
Command create-connector-connection-pool executed successfully.
```

10.1.14.22 delete-connector-connection-pool Subcommand

Synopsis

```
delete-connector-connection-pool [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--cascade[=true|=false]] connector_connection_pool_name
```

Description

Delete the Connector connection pool.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--cascade	None	Determine whether to delete the connector resources associated with the connector connection pool.

Option name	Mnemonic name	Description
		The attempt will fail if 'false' is specified and the pool has connector resources associated to it. The default value is 'false'.

Operands

Operand name	Omission	Description
connector_connection_pool_name	Not possible	Specify the connector connection pool name.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin delete-connector-connection-pool --cascade=true eis/connectionPool
Command delete-connector-connection-pool executed successfully.
```

10.1.14.23 list-connector-connection-pools Subcommand

Synopsis

```
list-connector-connection-pools [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help]
```

Description

Obtain the list of the connector connection pools.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-connector-connection-pools
eis/connectionPool
Command list-connector-connection-pools executed successfully.
```

10.1.14.24 create-connector-resource Subcommand

Synopsis

```
create-connector-resource [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--target target] --poolname connector_connection_pool_name [--enabled[=true|=false]] [--description text] jndi_name
```

Description

Create the connector resource.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the reference destination of the connector resource (IJSERVER cluster name or "domain"). The default is "domain".
--poolname	None	Specify the name of the connector connection pool.
--enabled	None	To disable the resource, specify false. The default value is true.
--description	None	Provide a description for the connector resource.

Operands

Operand name	Omission	Description
jndi_name	Not possible	Specify the JNDI name of the connector resource.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-connector-resource --target IJServer001 --poolname eis/connectionPool eis/
connectionFactory
Command create-connector-resource executed successfully.
```

10.1.14.25 delete-connector-resource Subcommand

Synopsis

```
delete-connector-resource [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--
secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--target target] jndi_name
```

Description

Delete the connector resource.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the reference destination of the connector resource (IJServer cluster name or "domain"). The default is "domain".

Operands

Operand name	Omission	Description
jndi_name	Not possible	Specify the JNDI name of the connector resource.

Return value

0: Ended normally

1: Ended abnormally

Notes

- If 2 or more reference destinations exist for the resource, then the command will fail. Use the asadmin command delete-resource-ref subcommand to delete the reference destinations that were added, then re-execute.
- If the target option is omitted, only a connector resource with no reference destination can be deleted.

Example

Execute as follows:

```
> asadmin delete-connector-resource --target IJServer001 eis/connectionFactory
Command delete-connector-resource executed successfully.
```

10.1.14.26 list-connector-resources Subcommand

Synopsis

```
list-connector-resources [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [target]
```

Description

Obtain the list of connector resources.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Possible	Specify the reference destination of the connector resource (IJServer cluster name, server instance name or "domain"). The default is "domain".

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-connector-resources IJServer001
eis/connectionFactory
Command list-connector-resources executed successfully.
```

10.1.14.27 create-admin-object Subcommand

Synopsis

```
create-admin-object [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --restype aorestype --raname resource_adapter_name [--enabled[=true|=false]] [--target target] [--description text] [--property name=value[:name=value]...] jndi_name
```

Description

Creates the Admin object resource.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--restype	None	Specify the resource type of the Admin object resource.
--raname	None	Specify the resource adapter name.
--enabled	None	To disable the resource, specify false. The default value is true.
--target	None	Specify the reference destination of the Admin object resource (JServer cluster name, "server" or "domain"). The default is "domain". If the reference destination is not specified here or the reference destination is added after creating the resource, specify the reference destination by the following. <ul style="list-style-type: none">- Interstage Java EE Admin console- asadmin command create-resource-ref_subcommand For how to select a reference destination, refer to "Procedure to select the target that uses the resource".
--description	None	Provide a description for the Admin object resource.
--property	None	Specify the property for the Admin object JavaBean instance by separating the "property name=value" pair by a colon (:).

Operands

Operand name	Omission	Description
jndi_name	Not possible	Specify the JNDI name of the Admin object resource.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-admin-object --restype com.fujitsu.interstage.AdminObjectIf --raname sampleRar --target IJServer001 --property prop1=value1:prop2=value2 eis/sampleAdminObject  
Command create-admin-object executed successfully.
```

10.1.14.28 delete-admin-object Subcommand

Synopsis

```
delete-admin-object [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--target target] jndi_name
```

Description

Deletes the Admin object resource.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the reference destination of the Admin object resource (IJServer cluster name, "server" or "domain"). The default is "domain".

Operands

Operand name	Omission	Description
jndi_name	Not possible	Specify the JNDI name of the Admin object resource.

Return value

0: Ended normally

1: Ended abnormally

Notes

- If there are multiple reference destinations referenced, the command execution will fail. Delete the added reference destinations using the asadmin command [delete-resource-ref](#) subcommand, and then execute it again.

- If the target option is omitted, only an Admin object resource with no reference destination can be deleted.

Example

Execute as follows:

```
> asadmin delete-admin-object --target IJServer001 eis/sampleAdminObject
Command delete-admin-object executed successfully.
```

10.1.14.29 list-admin-objects Subcommand

Synopsis

```
list-admin-objects [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [target]
```

Description

Obtains a list of Admin object resources.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Possible	Specify the reference destination of the Admin object resource (IJServer cluster name, server instance name, "server" or "domain"). The default is "domain".

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-admin-objects IJServer001
eis/sampleAdminObject
Command list-admin-objects executed successfully.
```

10.1.14.30 create-resource-adapter-config Subcommand

Synopsis

```
create-resource-adapter-config [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--threadpools threadpoolid] resource_adapter_name
```

Description

Create the resource adapter definition information.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--threadpools	None	Specify the thread pool ID. If omitted, the default thread pool provided by this product is used.

Operands

Operand name	Omission	Description
resource_adapter_name	Not possible	Specify the resource adapter name.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-resource-adapter-config --threadpools threadpool1 sampleRar  
Command create-resource-adapter-config executed successfully.
```

10.1.14.31 delete-resource-adapter-config Subcommand

Synopsis

```
delete-resource-adapter-config [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] resource_adapter_name
```

Description

Delete the resource adapter definition information.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
resource_adapter_name	Not possible	Specify the resource adapter name.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin delete-resource-adapter-config sampleRar  
Command delete-resource-adapter-config executed successfully.
```

10.1.14.32 list-resource-adapter-configs Subcommand

Synopsis

```
list-resource-adapter-configs [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help]
```

Description

Obtains the list of the resource adapter definition properties.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-resource-adapter-configs
ra1
sampleRar
Command list-resource-adapter-configs executed successfully.
```

10.1.14.33 create-resource-ref Subcommand

Synopsis

```
create-resource-ref [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target reference_name
```

Description

Create the resource reference.

For details on the asadmin command, refer to ["10.1 asadmin"](#).

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the reference destination of the resource (JServer cluster name or "server").

Operands

Operand name	Omission	Description
Reference_name	Not possible	Specify the JNDI name of the resource.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-resource-ref --target IJServer001 mail/mail1  
Command create-resource-ref executed successfully.
```

10.1.14.34 delete-resource-ref Subcommand

Synopsis

```
delete-resource-ref [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target jndi_name
```

Description

Delete the resource reference.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the reference destination of the resource (IJServer cluster name or "server").

Operands

Operand name	Omission	Description
jndi_name	Not possible	Specify the JNDI name.

Return value

- 0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin delete-resource-ref --target IJServer001 mail/mail1
Command delete-resource-ref executed successfully.
```

10.1.14.35 list-resource-refs Subcommand

Synopsis

```
list-resource-refs [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [target]
```

Description

Display the resource reference.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Possible	Specify the resource reference destination (IJServer cluster name, server instance name or "server"). The default is "server".

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-resource-refs IJServer001
mail/mail1
mail/mail2
Command list-resource-refs executed successfully.
```

10.1.15 Subcommands - Category: Lifecycle Module

10.1.15.1 create-lifecycle-module Subcommand

Synopsis

```
create-lifecycle-module [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target --classname classname [--enabled[=true|=false]] [--classpath classpath] [--loadorder loadorder] [--description Description] [--property name=value[:name=value]...] module_name
```

Description

Create the definition of the lifecycle module.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the IJServer cluster name , Interstage Java EE DAS service instance name (server) or domain to register the lifecycle module definition into.
--classname	None	Specify the fully qualified class name of the lifecycle module.
--enabled	None	Specify enabled/disabled status of the lifecycle module. For details on status change (switch between enable and disable) and reference, refer to the following subcommands: <ul style="list-style-type: none">- show-component-status- enable- disable
--classpath	None	Specify the classpath of the lifecycle module.
--loadorder	None	Specify the load order of the lifecycle module. The execution starts from the smallest value. Specify a value from 100 (min) to a value (max) that does not exceed the system's MAXINT value. If the load order is omitted or not unique, the load order is not guaranteed. Values under 100 are used internally by the IJServer cluster, or could be used in future versions. If a value under 100 is specified, use it after checking the operation and assuring compatibility.
--description	None	Provide a description for the lifecycle module.
--property	None	Specify a property. If specifying multiple properties, separate the "property name=value" pairs by a colon (:).

Operands

Operand name	Omission	Description
module_name	Not possible	Specify the definition name of the lifecycle module.

Return value

0: Ended normally

1: Ended abnormally

Notes

The following lifecycle module definition names cannot be registered, as they are used by the IJServer cluster.

- JBIFramework
- WSTCPConnectorLCModule

Example

Execute as follows:

```
> asadmin create-lifecycle-module --target IJServer001 --classname "examples.LifecycleListenerImpl" --  
classpath "/export/customSetup" --loaderorder 101 --description "this is a sample customSetup" --property  
arg1=value1:arg2=value2 customSetup  
Command create-lifecycle-module executed successfully.
```

10.1.15.2 delete-lifecycle-module Subcommand

Synopsis

```
delete-lifecycle-module [--terse[=true]=false] [--echo[=true]=false] [--interactive[=true]=false] [--host host] [--port port] [--secure[=true]  
=false] [--user admin_user] [--passwordfile file_name] [--help] --target target module_name
```

Description

Delete the lifecycle module definition.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the IJServer cluster name , Interstage Java EE DAS service instance name (server) or domain to delete the lifecycle module definition from.

Operands

Operand name	Omission	Description
module_name	Not possible	Specify the definition name of the lifecycle module.

Return value

0: Ended normally

1: Ended abnormally

Notes

The following lifecycle module definition names cannot be used as they are used by the IJServer cluster.

- JBIFramework
- WSTCPConnectorLCModule

Example

Execute as follows:

```
> asadmin delete-lifecycle-module --target IJServer001 customSetup  
Command delete-lifecycle-module executed successfully.
```

10.1.15.3 list-lifecycle-modules Subcommand

Synopsis

```
list-lifecycle-modules [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] target
```

Description

List of the lifecycle module definition name.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Not possible	Specify the IJServer cluster name , Interstage Java EE DAS service instance name (server) or domain.

Return value

0: Ended normally

1: Ended abnormally

Notes

- The list to be displayed may contain the following lifecycle modules that the IJServer cluster dynamically registers.
 - JBIFramework
 - WSTCPCConnectorLCModule
- For details on status change (switch between enable and disable) and reference, refer to the following subcommands:
 - show-component-status
 - enable
 - disable

Example

Execute as follows:

```
>asadmin list-lifecycle-modules IJServer001
EJBModule
JDBCModule
JBIFramework
Command list-lifecycle-modules executed successfully.
```

10.1.16 Subcommands - Category: System Properties/JVM Options

10.1.16.1 create-system-properties Subcommand

Synopsis

```
create-system-properties [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target name=value[:name=value]...
```

Description

Create the system properties.

System properties created using this command will be in effect after the server instance starts up.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the domain, the settings name, the IJServer cluster name, or the server instance name. If an identical system property is defined more than once, the definition content with the higher priority will be valid. The priority is Domain < Settings < IJServer cluster < Server instance.

Operands

Operand name	Omission	Description
Name	Not possible	Specify the system property. If specifying multiple system properties, separate the "property name=value" pairs by a colon (:).

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
>asadmin create-system-properties --target IJServer001 sampleproperty=default
Command create-system-properties executed successfully.
```

In this case, the following system property will be in effect after all server instances under IJServer001 start up:

- -Dsampleproperty=default

Additionally, IJServer cluster system properties can be overwritten per server instance according to the following method:

```
>asadmin create-system-properties --target IJServer001 sampleproperty=default
Command create-system-properties executed successfully.
>asadmin create-system-properties --target IJServer001-2 sampleproperty=customized
Command create-system-properties executed successfully.
```

In this case, "sampleproperty=default" is enabled in server instance IJServer001-1, and "sampleproperty=customized" is enabled in IJServer001-2.

10.1.16.2 delete-system-property Subcommand

Synopsis

```
delete-system-property [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target property_name
```

Description

Delete the system property.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the domain, the IJServer cluster name, the settings name, or the server instance name.

Operands

Operand name	Omission	Description
property_name	Not possible	Specify the system property name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
>asadmin delete-system-property --target IJServer001 sampleproperty
Command delete-system-property executed successfully.
```

10.1.16.3 list-system-properties Subcommand

Synopsis

```
list-system-properties [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] target
```

Description

List the system properties.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Not possible	<p>Specify the domain, the settings name, the IJServer cluster name, or the server instance name.</p> <p>If the server instance name is specified, the system properties that are referenced by the server instance are displayed.</p> <p>If the IJServer cluster name is specified, the system properties that are referenced by the IJServer cluster are displayed.</p> <p>If the settings name is specified, the system properties that are referenced by the settings are displayed.</p> <p>If the target does not exist, an error is returned.</p> <p>If the target exists, but none of the displayed system properties exist, there is a normal return.</p>

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
>asadmin list-system-properties IJServer001
HTTP_LISTENER_PORT=28090
IIOP_SSL_LISTENER_PORT=23820
JMS_PROVIDER_PORT=7676
IIOP_LISTENER_PORT=23700
JMX_SYSTEM_CONNECTOR_PORT=28686
IIOP_SSL_MUTUALAUTH_PORT=23920
Command list-system-properties executed successfully.
```

10.1.16.4 create-jvm-options Subcommand

Synopsis

```
create-jvm-options [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--profiler[=true|=false]] [--help] --target target
jvm_option_name=[jvm_option_value][:jvm_option_name=[jvm_option_value]]...
```

Description

Creates the Java VM option.

For details on the `asadmin` command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
<code>--terse</code>	<code>-t</code>	Refer to "asadmin Command Common Options".
<code>--echo</code>	<code>-e</code>	Refer to "asadmin Command Common Options".
<code>--interactive</code>	<code>-I</code>	Refer to "asadmin Command Common Options".
<code>--host</code>	<code>-H</code>	Refer to "asadmin Command Common Options".
<code>--port</code>	<code>-p</code>	Refer to "asadmin Command Common Options".
<code>--secure</code>	<code>-s</code>	Refer to "asadmin Command Common Options".
<code>--user</code>	<code>-u</code>	Refer to "asadmin Command Common Options".
<code>--passwordfile</code>	None	Refer to "asadmin Command Common Options".
<code>--profiler</code>	None	Specify whether the Java VM options are under the Profiler. The default value is false.
<code>--help</code>	<code>-?</code>	Refer to "asadmin Command Common Options".
<code>--target</code>	None	Specify the IJServer cluster name, the settings name, or the Interstage Java EE DAS service instance name (server).

Operands

Operand name	Omission	Description
<code>jvm_option_name</code>	Not possible	Specify the IJServer cluster name, the settings name, or the Interstage Java EE DAS service instance name (server).

Return value

0: Ended normally

1: Ended abnormally

Notes

- To change the value of a Java VM option that is already defined, follow the procedure below.

1. Obtain the current value using the `get` subcommand.

```
asadmin get <IJServer cluster name >.java-config.jvm-options
```

2. Edit the value obtained in 1) and use the `set` subcommand.

```
asadmin set <IJServer cluster name >.java-config.jvm-options=<new value >
```

The Java VM options defined after the creation of the server instance will be required for execution, therefore set the update values following the edit of the values which were obtained using the `get` subcommand.

- To specify a Java VM option in the operand of this command, escape characters might have to be used. For details, refer to "[10.1 asadmin](#)" > "[Using Escape Characters](#)".

Example

Execute as follows:

```
>asadmin create-jvm-options --target IJServer001 \-Dsamplejvmoption=default
Command create-jvm-options executed successfully.
```

10.1.16.5 delete-jvm-options Subcommand

Synopsis

```
delete-jvm-options [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--profiler[=true|=false]] [--help] --target target
jvm_option_name=[jvm_option_value][:jvm_option_name=[jvm_option_value]]...
```

Description

Delete the Java VM option.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--profiler	None	Specify whether the Java VM options are under the Profiler. The default value is false.
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the IJServer cluster name, the settings name, or the Interstage Java EE DAS service instance name (server).

Operands

Operand name	Omission	Description
jvm_option_name	Not possible	Specify the Java VM option. If specifying multiple Java VM properties, separate the "option name=value" pairs by a colon (:).

Return value

0: Ended normally

1: Ended abnormally

Notes

- To specify a Java VM option in the operand of this command, escape characters might have to be used. For details, refer to "[10.1 asadmin](#)" > "[Using Escape Characters](#)".
- The JVM options defined in the default must not be deleted.

Example

Execute as follows:

```
>asadmin delete-jvm-options --target IJServer001 \-Dsamplejvmoption=default  
Command delete-jvm-options executed successfully.
```

10.1.17 Profiler Configuration

10.1.17.1 create-profiler Subcommand

Synopsis

```
create-profiler [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]  
[--user admin_user] [--passwordfile file_name] [--help] [--classpath classpath] [--nativelibpath native_library_path][--enabled[=true|=  
=false]] [--property name=value[:name=value]...] --target target profiler_name
```

Description

This creates the new Profiler configuration, and associates it with the server instance. If you have changed the Profiler configuration, the server instance must be restarted.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the Profiler configuration target to be created. Specify the IJServer cluster name, the settings name, or the Interstage Java EE DAS service instance name (server).
--classpath	None	Specify the Profiler class path. The classes used by this Profiler are stored in the class path.
--nativelibpath	None	The native library path concatenates the native common library relative path, the standard JRE native library path, the shell environment settings (in Solaris/Linux, this is LD_LIBRARY_PATH), and the path specified on the "JVM Profiler Configuration" page.
--enabled	None	This setting enables or disables the Profiler.
--property	None	This is an independent attribute of each Profiler tool.

Operands

Operand name	Omission	Description
profiler_name	Not possible	Specify the Profiler configuration name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
>asadmin create-profiler --classpath /home/appserver/ --nativelibpath /u/home/lib --enabled=false --target
IJServer001 --property defaultuser=admin:password=adminadmin sample_profiler
Command create-profiler executed successfully.
```

10.1.17.2 delete-profiler Subcommand

Synopsis

```
delete-profiler [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]
[--user admin] [--passwordfile file_name] [--help] --target target
```

Description

This deletes the specified Profiler configuration. If you have changed the Profiler configuration, the server instance must be restarted.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the Profiler configuration target to be deleted. Specify the IJServer cluster name, the settings name, or the Interstage Java EE DAS service instance name (server).

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
>asadmin delete-profiler --target IJServer001
Command delete-profiler executed successfully.
```

10.1.18 Subcommands - Category: Monitoring

10.1.18.1 generate-jvm-report Subcommand

Synopsis

```
generate-jvm-report [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--type={summary|memory|class|thread}] instance_name
```

Description

Display a Java VM report of the server instance.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--type	None	Select the report type to be displayed from the following: <ul style="list-style-type: none">- summary (default value) Display Java VM basic information and valid classpath, native library path and system properties.- memory Display the Java VM memory and garbage collection information.- class Display the classes loaded to the Java VM and just-in-time compiler information.- thread Display the Java VM full thread dump.

Operands

Operand name	Omission	Description
instance_name	Not possible	Specify the server instance name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
>asadmin generate-jvm-report --type=class IJServer001-1
**** Class Statistics for Java Virtual Machine [App Server Instance Name: IJServer001-1] ****
Class loading and unloading in the Java Virtual Machine:
Number of classes currently loaded in the Java Virtual Machine: 8,787
Number of classes loaded in the Java Virtual Machine since the startup: 9,102
Number of classes unloaded from the Java Virtual Machine: 315
Just-in-time (JIT) compilation information in the Java Virtual Machine:
Java Virtual Machine compilation monitoring allowed: true
Name of the Just-in-time (JIT) compiler: HotSpot Server Compiler
Total time spent in compilation: 0 Hours 1 Minutes 17 Seconds
Command generate-jvm-report executed successfully.
```

10.1.19 Subcommands - Category: Security

10.1.19.1 change-admin-password Subcommand

Synopsis

```
change-admin-password [--terse[=true|=false]] [--echo[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--help]
```

Description

Changes the file realm administrator user password.

If a realm except the file realm was selected for the Java EE operating environment authentication realm, there is no need to execute this command.

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- Specify eight or more alphanumeric characters as the master password.

- If a `.asadminpass` file exists in the user's home directory, the login information of the `.asadminpass` file is updated by executing this command. For details on the `.asadminpass` file, refer to the [login](#) subcommand.
- If the administrator user specified in this command is the service administrator, then execute the `change-service-adminuser` subcommand after this command, then reset the service administrator password.

Example

A query is repeated twice as shown below. Enter the current password and the new password twice in accordance with the query.

```
> asadmin change-admin-password
Please enter the admin user name>admin
Please enter the old admin password>
Please enter the new admin password>
Please enter the new admin password again>
Command change-admin-password executed successfully.
```

10.1.19.2 change-service-adminuser Subcommand

Synopsis

```
change-service-adminuser [--terse[=true|=false]] [--echo[=true|=false]] [--user admin_user] [--passwordfile=file_name] [--help] [--adminuser username]
```

Description

This command sets the administrator user ID (service administrator user ID) and administrator password (service administrator password) used for authentication automatically when the Interstage Java EE DAS service and Interstage Java EE Node Agent service start up.

The specified values must exist in `admin-realm` and be a valid administrator user ID/user administrator password that both belong to the `asadmin` group.

Note that the administrator user ID and administrator password set here are only used when the file or ldap realm was selected for the Java EE operating environment authentication realm. If the default settings operating system realm is used, there is no need to execute this command.

This command can also be executed if the Interstage Java EE DAS service is not running.

For details on the `asadmin` command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
<code>--terse</code>	<code>-t</code>	Refer to "asadmin Command Common Options".
<code>--echo</code>	<code>-e</code>	Refer to "asadmin Command Common Options".
<code>--user</code>	<code>-u</code>	Refer to "asadmin Command Common Options".
<code>--passwordfile</code>	None	Refer to "asadmin Command Common Options".
<code>--help</code>	<code>-?</code>	Refer to "asadmin Command Common Options".
<code>--adminuser</code>	None	Specify the service administrator user ID. If this is omitted, a query asking you to enter the user name and password will be displayed.

Return value

0: Ended normally

1: Ended abnormally

Notes

If the specified administrator user ID (`admin_user`) and service administrator user ID (`username`) are the same, the following prompt that asks you to enter the service administrator user password will not be displayed.

```
Please enter the new service admin password>
```

Example

The query is made as follows:

```
> asadmin change-service-adminuser
Please enter the admin user name>admin
Please enter the admin password>
Please enter the new service admin user name>newadmin
Please enter the new service admin password>
Command change-service-adminuser executed successfully.
```

When authentication fails, the following error message is output:

```
> asadmin change-service-adminuser
Please enter the admin user name>admin
Please enter the admin password>
Please enter the new service admin user name>newadmin
Please enter the new service admin password>
asadmin: INFO: ISJEE_SEC5046: Audit: Authentication refused for [newadmin].
asadmin: ERROR: ISJEE_CLI315: Incorrect service admin username and/or password.
asadmin: ERROR: ISJEE_CLI137: Command change-service-adminuser failed.
```

10.1.19.3 show-service-adminuser Subcommand

Synopsis

```
show-service-adminuser [--terse[=true|=false]] [--echo[=true|=false]] [--user admin_user] [--passwordfile=file_name] [--help]
```

Description

The administrator user ID (service administrator user ID) and administrator password (service administrator password) that are used for authentication automatically when the Interstage Java EE DAS service and Interstage Java EE Node Agent service start up.

This command can also be executed if the Interstage Java EE DAS service is not running.

For details on the `asadmin` command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
<code>--user</code>	<code>-u</code>	Refer to "asadmin Command Common Options".
<code>--passwordfile</code>	None	Refer to "asadmin Command Common Options".
<code>--terse</code>	<code>-t</code>	Refer to "asadmin Command Common Options".
<code>--echo</code>	<code>-e</code>	Refer to "asadmin Command Common Options".
<code>--help</code>	<code>-?</code>	Refer to "asadmin Command Common Options".

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin show-service-adminuser
Please enter the admin user name>admin
Please enter the admin password>
admin
Command show-service-adminuser executed successfully.
```

10.1.19.4 create-connector-security-map Subcommand

Synopsis

```
create-connector-security-map [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --poolname connector_connection_pool_name [--principals principal_name1[,principal_name2]...] [--usergroups usergroup_name1[,usergroup_name2]...] --mappedusername username security_map_name
```

Description

Create the security map.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options". To specify the security map Backend Principal password created using the create-connector-security-map subcommand, add the following entry to the file specified in --passwordfile: AS_ADMIN_MAPPEDPASSWORD=password
--help	-?	Refer to "asadmin Command Common Options".
--poolname	None	Specify the name of the connector connection pool.
--principals	None	Specify the Principal. To specify multiple Principals, separate each one with a colon (':').
--usergroups	None	Specify the user group. To specify multiple user groups, separate each one with a colon (':').
--mappedusername	None	Specify the user name of the Backend Principal.

Operands

Operand name	Omission	Description
security_map_name	Not possible	Specify the security map name.

Return value

0: Ended normally

1: Ended abnormally

Notes

If the `--principals` and `--usergroups` options are specified, then the specified Principal and user group will be registered in the security map. When the Principal and user group are registered in the map source at the same time, however, Principal will have the higher priority when the mapping function is active.

Example

Execute as follows:

```
> asadmin create-connector-security-map --poolname eis/connectionPool --principals principal1,principal2 --
mappedusername backendPrincipal --passwordfile C:/password.txt securityMap
Command create-connector-security-map executed successfully.
```

10.1.19.5 delete-connector-security-map Subcommand

Synopsis

```
delete-connector-security-map [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--
secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --poolname connector_connection_pool_name
security_map_name
```

Description

Delete the security map.

For details on the `asadmin` command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
<code>--terse</code>	<code>-t</code>	Refer to "asadmin Command Common Options".
<code>--echo</code>	<code>-e</code>	Refer to "asadmin Command Common Options".
<code>--interactive</code>	<code>-I</code>	Refer to "asadmin Command Common Options".
<code>--host</code>	<code>-H</code>	Refer to "asadmin Command Common Options".
<code>--port</code>	<code>-p</code>	Refer to "asadmin Command Common Options".
<code>--secure</code>	<code>-s</code>	Refer to "asadmin Command Common Options".
<code>--user</code>	<code>-u</code>	Refer to "asadmin Command Common Options".
<code>--passwordfile</code>	None	Refer to "asadmin Command Common Options".
<code>--help</code>	<code>-?</code>	Refer to "asadmin Command Common Options".
<code>--poolname</code>	None	Specify the name of the connector connection pool.

Operands

Operand name	Omission	Description
security_map_name	Not possible	Specify the security map name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin delete-connector-security-map --poolname eis/connectionPool securityMap  
Command delete-connector-security-map executed successfully.
```

10.1.19.6 update-connector-security-map Subcommand

Synopsis

```
update-connector-security-map [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --poolname connector_connection_pool_name [--addprincipals principal_name1[,principal_name2]...] [--addusergroups usergroup_name1[,usergroup_name2]...] [--removeprincipals principal_name1[,principal_name2]...] [--removeusergroups usergroup_name1[,usergroup_name2]...] [--mappedusername username] security_map_name
```

Description

Update the security map.

For details on the asadmin command, refer to ["10.1 asadmin"](#).

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options". To specify the security map Backend Principal password updated using the update-connector-security-map subcommand, add the following entry to the file specified in --passwordfile: AS_ADMIN_MAPPEDPASSWORD=password
--help	-?	Refer to "asadmin Command Common Options".
--poolname	None	Specify the name of the connector connection pool.
--addprincipals	None	Specify the Principal to be added. When multiple Principals are specified, put a colon (':') between each Principal.
--addusergroups	None	Specify the user group to be added. When multiple user groups are specified, put a colon (':') between each user group.
--removeprincipals	None	Specify the Principal to be deleted. When multiple Principals are specified, put a colon (':') between each Principal.

Option name	Mnemonic name	Description
--removeusergroups	None	Specify the user group to be deleted. When multiple user groups are specified, put a colon (':') between each user group.
--mappedusername	None	Specify the user name of the Backend Principal.

Operands

Operand name	Omission	Description
security_map_name	Not possible	Specify the security map name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- The command will fail in the following situations:
 - The same Principal is specified for --addprincipals and --removeprincipals .
 - The same user group is specified for --addusergroups and --removeusergroups
 - A Principal already registered in the security map is specified for --addprincipals .
 - A user group already registered in the security map is specified for --addusergroups.
- When the Principal and user group are registered in the map source at the same time, however, Principal will have the higher priority when the mapping function is active.

Example

Execute as follows:

```
> asadmin update-connector-security-map --poolname eis/connectionPool --addprincipals principal1,principal2
--mappedusername backendPrincipal --passwordfile C:/password.txt securityMap
Command update-connector-security-map executed successfully.
```

10.1.19.7 list-connector-security-maps Subcommand

Synopsis

```
list-connector-security-maps [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] [--verbose[=true|=false]] connector_connection_pool_name
```

Description

Obtain the list of the security maps.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--verbose	None	If true, the security map name, Principal/user group, Backend Principal user name and password are output.

Operands

Operand name	Omission	Description
connector_connection_pool_name	Not possible	Specify the name of the connector connection pool .

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-connector-security-maps --verbose=true eis/connectionPool
=====
Security Map Name is : securityMap
=====
Principals for Security Map : securityMap are :
<principal> prin1
<principal> prin2

UserGroups for Security Map : securityMap are :

Backend Principal User Name for : securityMap is :backendPrincipal

Backend Principal Password for : securityMap is ${ALIAS=backendPass}

Command list-connector-security-maps executed successfully.
```

10.1.19.8 create-password-alias Subcommand

Synopsis

```
create-password-alias [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] aliasname
```

Description

Create the password alias. An alias cannot be created for the administrator password. The created password alias can be specified in place of the password as shown below.

- Interstage Java EE Admin console
- asadmin command [set](#) subcommand

If the password item is defined in the above, a password alias is specified in the following format.

```
{ALIAS=aliasname}
```

When the command is executed, the following prompt is displayed. Enter the password then.

```
Please enter the alias password
```

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options". To specify the password alias password created using the create-password-alias subcommand, add the following entry to the file specified in --passwordfile: AS_ADMIN_ALIASPASSWORD=password
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
Aliasname	Not possible	Specify the password alias name.

Return value

0: Ended normally

1: Ended abnormally

Notes

- The password that has been entered is not displayed.
- Whether case-sensitivity applies for the password alias will depend on the Java implementation. To avoid problems, use only lowercase.

Example

Execute as follows:

```
> asadmin create-password-alias alias1  
Please enter the alias password>  
Please enter the alias password again>  
Command create-password-alias executed successfully.
```

To encrypt the password in the domain.xml file, execute as follows:

```
asadmin set --user admin server.jms-service.jms-host.default_JMS_host.admin-password='${ALIAS=alias1}'
```

10.1.19.9 delete-password-alias Subcommand

Synopsis

```
delete-password-alias [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] aliasname
```

Description

Delete the password alias.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
Aliasname	Not possible	Specify the password alias name.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin delete-password-alias alias1  
Command delete-password-alias executed successfully.
```

10.1.19.10 list-password-aliases Subcommand

Synopsis

```
list-password-aliases [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help]
```

Description

List the password alias.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-password-aliases
alias1
alias2
Command list-password-aliases executed successfully.
```

10.1.19.11 update-password-alias Subcommand

Synopsis

```
update-password-alias [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] aliasname
```

Description

Update the password alias.

If the command is executed, the following command will prompt. Enter the password then.

```
Please enter the alias password
```

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options". To specify the password alias password updated using the update-password-alias subcommand, add the following entry to the file specified in --passwordfile: AS_ADMIN_ALIASPASSWORD=password
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
Aliasname	Not possible	Specify the password alias name.

Return value

0: Ended normally

1: Ended abnormally

Notes

The password that has been entered is not displayed.

Example

Execute as follows:

```
> asadmin update-password-alias alias1
Please enter the alias password>
Please enter the alias password again>
Command update-password-alias executed successfully.
```

10.1.19.12 create-ssl Subcommand

Synopsis

```
create-ssl [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --type {http-listener} --certname cert_name [--ssl2enabled[=true|=false]] [--ssl3enabled[=true|=false]] [--ssl3tlsciphers ssl3tlsciphers] [--tlseabled[=true|=false]] --target target [listener_id]
```

Description

Add the SSL definition in the HTTP Listener.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--type	None	Specify "http-listener". Define SSL for the port that the web container communicates through.
--certname	None	Specify the site certificate nick name. For details, refer to " 7.8.3 HTTP Service Definition Items ".
--ssl2enabled	None	Specify if SSL 2.0 is enabled or not. The default value is false.
--ssl3enabled	None	Specify if SSL 3.0 is enabled or not. The default value is true.
--ssl3tlsciphers	None	Specify the encryption method for SSL 3.0 and TLS 1.0. (*1) A comma "," is used to separate if more than one cipher is specified. The default value is not specified. This means that all encryption methods are selected.
--tlsenabled	None	Specify if TLS 1.0 is enabled or not. The default value is true.
--target	None	Specify the IJServer cluster name, the setting name or the Interstage Java EE DAS service instance name (server).

*1)

Encryption methods that can be specified are shown in the following list. Put a plus sign ("+") at the start of the following encryption methods before they are specified:

- TLS_DHE_RSA_WITH_AES_128_CBC_SHA
- SSL_DHE_RSA_WITH_3DES_EDE_CBC_SHA
- TLS_DHE_DSS_WITH_AES_128_CBC_SHA
- SSL_DHE_DSS_WITH_3DES_EDE_CBC_SHA
- SSL_DHE_RSA_WITH_DES_CBC_SHA
- SSL_DHE_DSS_WITH_DES_CBC_SHA
- SSL_RSA_EXPORT_WITH_DES40_CBC_SHA
- SSL_DHE_RSA_EXPORT_WITH_DES40_CBC_SHA
- SSL_DHE_DSS_EXPORT_WITH_DES40_CBC_SHA
- TLS_RSA_WITH_AES_128_CBC_SHA
- SSL_RSA_WITH_3DES_EDE_CBC_SHA
- SSL_RSA_WITH_RC4_128_SHA
- SSL_RSA_WITH_RC4_128_MD5

- SSL_RSA_WITH_DES_CBC_SHA
- SSL_RSA_EXPORT_WITH_RC4_40_MD5
- SSL_RSA_WITH_NULL_SHA
- SSL_RSA_WITH_NULL_MD5

Operands

Operand name	Omission	Description
listener_id	Possible	Specify the listener name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

The encryption methods that can be specified if http-listener was specified in -type are limited.

For details on the encryption methods that can be specified, refer to "SSL", "Communication between the Web Server Connector and the Web Container".

Example

Execute as follows:

```
> asadmin create-ssl --type http-listener --certname testcert --ssl3enabled=true --ssl3tlsciphers
+SSL_RSA_WITH_3DES_EDE_CBC_SHA,+TLS_RSA_WITH_AES_128_CBC_SHA --target IJServer001
default
Command create-ssl executed successfully.
```

10.1.19.13 delete-ssl Subcommand

Synopsis

```
delete-ssl [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--
user admin_user] [--passwordfile file_name] [--help] --type {http-listener} --target target [listener_id]
```

Description

Delete the SSL definition from the HTTP Listener.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--type	None	Specify " http-listener ". Delete the SSL definition for the port that the web container communicates.
--target	None	Specify the IJServer cluster name, the setting name or the Interstage Java EE DAS service instance name (server).

Operands

Operand name	Omission	Description
listener_id	Possible	Specify the listener name.

Return value

0: Ended normally

1: Ended abnormally

Notes

If the http-listener is specified in the --type, do not specify true in the --clientauthenabled.

If true is specified, an error may occur in the communication with the web server.

Example

Execute as follows:

```
> asadmin delete-ssl --type http-listener --target IJServer001 default
Command delete-ssl executed successfully.
```

10.1.19.14 create-auth-realm Subcommand

Synopsis

```
create-auth-realm [--classname realm_class] [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile filename] [--help] [--property_name=value [:name=value]...] [--target target] auth_realm_name
```

Description

Adds the realm for the specified authentication method.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--classname	None	Specify one of the implementation classes of the realm: <ul style="list-style-type: none"> - To create the file realm com.sun.enterprise.security.auth.realm.file.FileRealm - To create the ldap realm com.sun.enterprise.security.auth.realm.ldap.LDAPRealm - To create the OS realm com.fujitsu.interstage.javaee.security.auth.realm.os.OSRealm
--property	None	Specify the realm additional property. For details on the properties, refer to " 7.8.12 Security Definition Items ".
--target	None	Specify the IJServer cluster name, the setting name or the Interstage Java EE DAS service instance name (server).

Operands

Operand name	Omission	Description
auth_realm_name	Not possible	Specify the realm name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-auth-realm --classname com.sun.enterprise.security.auth.realm.file.FileRealm
--property jaas-context=fileRealm:file=${com.sun.aas.instanceRoot}/config/keyfile --target IJSERVER001
fileRealm
Command create-auth-realm executed successfully.
```

10.1.19.15 delete-auth-realm Subcommand

Synopsis

```
delete-auth-realm [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile filename] [--help] [--target target] auth_realm_name
```

Description

Deletes the specified realm.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the IJServer cluster name, the setting name or the Interstage Java EE DAS service instance name (server).

Operands

Operand name	Omission	Description
auth_realm_name	Not possible	Specify the realm name.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin delete-auth-realm --target IJSERVER001 fileRealm
Command delete-auth-realm executed successfully.
```

10.1.19.16 list-auth-realms Subcommand

Synopsis

```
list-auth-realms [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]
[--user admin_user] [--passwordfile filename] [--help] [target]
```

Description

Lists the realms in the IJServer cluster.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".

Operands

Operand name	Omission	Description
target	Not possible	Specify the IJServer cluster name, the server instance name, setting name or the Interstage Java EE DAS instance name (server).

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-auth-realms IJSERVER001
admin-realm
file
LDAPRealm
Command list-auth-realms executed successfully.
```

10.1.19.17 create-file-user Subcommand

Synopsis

```
create-file-user [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]
[--user admin_user] [--passwordfile file_name] [--help] [--groups user_groups[:user_groups]...] [--authrealmname authrealm_name] --
target target username
```

Description

Create the file realm of the user.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
		To specify the file realm user password created using the create-file-user subcommand, add the following entry to the file specified in --passwordfile: AS_ADMIN_USERPASSWORD=password
--help	-?	Refer to "asadmin Command Common Options".
--groups	None	Specify a list of group that the user belongs to. When multiple groups are specified, put a colon (':') between each group. If this is omitted, it will not be set. For details, refer to "File Realm Settings".
--authrealmname	None	Specify the file realm name. Specify the name of the realm which was set as the file realm. If this is omitted, 'file' will be selected.
--target	None	Specify the IJServer cluster name, the setting name or the Interstage Java EE DAS service instance name (server).

Operands

Operand name	Omission	Description
username	Not possible	Specify the user name. For details, refer to "File Realm Settings".

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

The password that has been entered is not displayed.
For details on the password that is set, refer to "File Realm Settings".

Example

Execute as follows:

```
> asadmin create-file-user --target IJServer001 user1
Please enter the file user password>
Please enter the file user password again>
Command create-file-user executed successfully.
```

10.1.19.18 delete-file-user Subcommand

Synopsis

```
delete-file-user [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]
[--user admin_user] [--passwordfile file_name] [--help] [--authrealmname authrealm_name] --target target username
```

Description

Delete the file realm user.
For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--authrealmname	None	Specify the file realm name. Specify the name of the realm which was set as the file realm. If this is omitted, 'file' will be selected.
--target	None	Specify the IJServer cluster name, the setting name or the Interstage Java EE DAS service instance name (server).

Operands

Operand name	Omission	Description
username	Not possible	Specify the user name.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin delete-file-user --target IJServer001 user1  
Command delete-file-user executed successfully.
```

10.1.19.19 update-file-user Subcommand

Synopsis

```
update-file-user [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]  
[--user admin_user] [--passwordfile file_name] [--help] [--groups user_groups[:user_groups]...] [--authrealmname authrealm_name] --  
target target username
```

Description

Update the file realm user.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options". To specify the file realm user password updated using the update-file-user subcommand, add the following entry to the file specified in --passwordfile: AS_ADMIN_USERPASSWORD=password
--help	-?	Refer to "asadmin Command Common Options".
--groups	None	Specify a list of group that the user belongs to. When multiple groups are specified, put a colon (':') between each group. If this is omitted, it will not be set. For details, refer to "File Realm Settings".
--authrealmname	None	Specify the file realm name. Specify the name of the realm which was set as the file realm. If this is omitted, 'file' will be selected.
--target	None	Specify the IJServer cluster name, the setting name or the Interstage Java EE DAS service instance name (server).

Operands

Operand name	Omission	Description
username	Not possible	Specify the user name. For details, refer to "File Realm Settings".

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- The password that has been entered is not displayed.
- For details on the password that is set, refer to "File Realm Settings".

Example

Execute as follows:

```
> asadmin update-file-user --groups group1 --target IJServer001 user1
Please enter the file user password>
Please enter the file user password again>
Command update-file-user executed successfully.
```

10.1.19.20 list-file-users Subcommand

Synopsis

```
list-file-users [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]  
[--user admin_user] [--passwordfile file_name] [--help] [--authrealmname authrealm_name] target
```

Description

Display a list of file realm users.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--authrealmname	None	Specify the file realm name. Specify the name of the realm which was set as the file realm. If this is omitted, 'file' will be selected.

Operands

Operand name	Omission	Description
target	Not possible	Specify the IJServer cluster name, the server instance name, the setting name or the Interstage Java EE DAS service instance name (server).

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-file-users IJServer001  
user1  
user2  
Command list-file-users executed successfully.
```

10.1.19.21 list-file-groups Subcommand

Synopsis

```
list-file-groups [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]]  
[--user admin_user] [--passwordfile file_name] [--help] [--name username] [--authrealmname authrealm_name] target
```

Description

Display the list of file realm groups.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--name	None	The file realm user is specified.
--authrealmname	None	Specify the file realm name. Specify the name of the realm which was set as the file realm.

Operands

Operand name	Omission	Description
target	Not possible	Specify the IJServer cluster name, the server instance name, the setting name or the Interstage Java EE DAS instance name (server).

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin list-file-groups IJServer001  
group1  
group2  
Command list-file-groups executed successfully.
```

10.1.20 Subcommands - Category: Database Operation

10.1.20.1 start-database Subcommand

Synopsis

start-database [--terse[=true|=false]] [--echo[=true|=false]] [--help] [--dbhost hostname] [--dbport number] [--dbhome directory]

Description

Start the database Java DB (client/server environments).

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--dbhost	None	Specify the Java DB host name or IP address. The default is 0.0.0.0.
--dbport	None	Specify the Java DB port number. The default is 1527.
--dbhome	None	Specify the Java DB system directory. For details on the default Java DB system directory, refer to "Java DB System Directory" in the "Java DB" appendix.

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin start-database --dbhost 0.0.0.0 --dbport 1527
```

10.1.20.2 stop-database Subcommand

Synopsis

stop-database [--terse[=true|=false]] [--echo[=true|=false]] [--help] [--dbhost hostname] [--dbport number]

Description

Stop the database Java DB (client/server environments).

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--dbhost	None	Specify the Java DB host name or IP address. The default is 0.0.0.0.

Option name	Mnemonic name	Description
--dbport	None	Specify the Java DB port number. The default is 1527.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

```
> asadmin stop-database --dbhost 0.0.0.0 --dbport 1527
Command stop-database executed successfully.
```

10.1.21 EJB Dispatch

10.1.21.1 create-ejb-dispatch-target Subcommand

Synopsis

```
create-ejb-dispatch-target [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target target_cluster
```

Description

This adds the dispatch target of the EJB Dispatcher.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the IJServer cluster name for the EJB Dispatcher.

Operands

Operand name	Omission	Description
target_cluster	Not possible	Specify the name of the IJServer cluster which will be added as the dispatch target.

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- The command can be executed even when the specified --target option is not an EJB Dispatcher cluster.
- The EJB Dispatcher cluster itself cannot be a dispatch target. For this reason, the same IJServer cluster must not be specified for the --target option and target_cluster.

Example

Execute as follows:

```
> asadmin create-ejb-dispatch-target --target IJServer001 IJServer002  
Command create-ejb-dispatch-target executed successfully.
```

10.1.21.2 delete-ejb-dispatch-target Subcommand

Synopsis

```
delete-ejb-dispatch-target [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target target_cluster
```

Description

This deletes the dispatch target of the EJB Dispatcher.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the IJServer cluster name for the EJB Dispatcher.

Operands

Operand name	Omission	Description
target_cluster	Not possible	Specify the name of the IJServer cluster which will be deleted as the dispatch target.

Return value

- 0: Ended normally

1: Ended abnormally

Notes

- The command can be executed even when the specified --target option is not an EJB Dispatcher cluster.
- The EJB Dispatcher cluster itself cannot be a dispatch target. For this reason, the same IJServer cluster must not be specified for the --target option and target_cluster.

Example

Execute as follows:

```
> asadmin delete-ejb-dispatch-target --target IJServer001 IJServer002  
Command delete-ejb-dispatch-target executed successfully.
```

10.1.21.3 disable-ejb-dispatch-target Subcommand

Synopsis

```
disable-ejb-dispatch-target [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target target_instance
```

Description

This temporarily disables the dispatch target of the EJB Dispatcher.

The status which was manipulated using this command is retained permanently. This status is retained even after the restart of the EJB Dispatcher or after an abnormal stop, therefore the enable/disable state of the dispatch target will not be changed unless this command or the enable-ejb-dispatch-target subcommand is executed.

An error will not be notified, even if this command is executed for a server instance with disabled dispatch status.

For details on the asadmin command, refer to "[10.1 asadmin](#)".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the server instance name for the EJB Dispatcher.

Operands

Operand name	Omission	Description
target_insntace	Not possible	Specify the name of a server instance which is disabled as the dispatch target.

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

This command can only be executed when the IJServer cluster of the EJB Dispatcher is running.

Example

Execute as follows:

```
> asadmin disable-ejb-dispatch-target --target Instance001 Instance002  
Command disable-ejb-dispatch-target executed successfully.
```

10.1.21.4 enable-ejb-dispatch-target Subcommand

Synopsis

```
enable-ejb-dispatch-target [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target target_instance
```

Description

This enables the dispatch target of the EJB Dispatcher.

The status which was manipulated using this command is retained permanently. This status is retained even after the restart of the EJB Dispatcher or after an abnormal stop, therefore the enable/disable state of the dispatch target will not be changed unless this command or the disable-ejb-dispatch-target subcommand is executed.

An error will not be notified, even if this command is executed for a server instance with enabled dispatch status.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the server instance name for the EJB Dispatcher.

Operands

Operand name	Omission	Description
target_instance	Not possible	Specify the name of a server instance which is enabled as the dispatch target.

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

This command can only be executed when the IJServer cluster of the EJB Dispatcher is running.

Example

Execute as follows:

```
> asadmin enable-ejb-dispatch-target --target Instance001 Instance002  
Command enable-ejb-dispatch-target executed successfully.
```

10.1.21.5 list-ejb-dispatch-targets Subcommand

Synopsis

```
list-ejb-dispatch-targets [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target [target_cluster]
```

Description

The active EJB Dispatcher displays the dispatch target server instance state. In the display, the enable/disable state for the dispatch target, and the availability of the dispatch request to the server instance, are separated by a forward slash (Example: "ENABLE/STARTED"). The states shown below are displayed.

- Dispatch target enable/disable states

Display	Meaning
ENABLE	The server instance dispatch status is enabled.
DISABLE	The server instance dispatch status is disabled.

The enable/disable state of the dispatch target can be changed using the asadmin command enable-ejb-dispatch-target and disable-ejb-dispatch-target subcommands.

- Availability of the dispatch request to the server instance

Display	Meaning
STARTED	The request can be dispatched to the server instance. If the dispatch target state is ENABLE, the request will be dispatched.
STOPPED	The request cannot be dispatched to the server instance.
UNKNOWN	An error occurs following the attempt to change the state to STARTED, therefore the request cannot be dispatched to the server instance. By executing the enable-dispatch-target subcommand, it is possible to ensure that the dispatch state is the latest state by matching it to the start state of the server instance.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".

Option name	Mnemonic name	Description
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify "ejb-dispatch" for the load balancer method, and the name of the enabled EJB Dispatcher server instance.

Operands

Operand name	Omission	Description
target_cluster	Possible	Specify the name of the dispatch target IJServer cluster name for the server instance specified for the --target option. If the IJServer cluster name is specified, all the states of the server instances that belong to the specified IJServer cluster are displayed. If this parameter is omitted, all dispatch target IJServer cluster server instance names are displayed.

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

- When dispatch_target_cluster is specified

```
> asadmin list-ejb-dispatch-targets --target distacher_instance001
target_cluster001
  Instance001  ENABLE/STARTED
  Instance002  ENABLE/STOPPED
  Instance003  ENABLE/STOPPED
Command list-ejb-dispatch-targets executed successfully.
```

When there are no server instances, the following is output and a normal completion follows.

```
> asadmin list-ejb-dispatch-targets --target distacher_instance001
target_cluster001
  Nothing to list.
Command list-ejb-dispatch-targets executed successfully.
```

- When dispatch_target_cluster is not specified

```
> asadmin list-ejb-dispatch-targets --target distacher_instance001
DISPATCH TARGET: IJServer001
  Instance001  ENABLE/STARTED
  Instance002  ENABLE/STOPPED
  Instance003  ENABLE/STOPPED

DISPATCH TARGET: IJServer002
  Nothing to list.
```

```
DISPATCH TARGET: IJServer003
Instance004 DISABLE/STARTED
Instance005 DISABLE/STOPPED
Instance006 DISABLE/STOPPED
Command list-ebb-dispatch-targets executed successfully.
```

10.1.22 Session Recovery

These are the subcommands for using the session recovery feature. These subcommands can only be used with session recovery.

10.1.22.1 create-http-listener Subcommand

Synopsis

```
create-http-listener --listeneraddress address --listenerport listener_port --defaultvs virtual_server [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target listener_id
```

Description

This creates the HTTP listener for control.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--listeneraddress	None	Specify a valid server IP address, or '0.0.0.0'. Specify '0.0.0.0' to use all valid server IP addresses.
--listenerport	None	Specify "\${SESSIONRECOVERY_PORT}".
--defaultvs	None	Specify "__sessionrecovery".
--target	None	Specify the name of the IJServer cluster that creates the HTTP listener for control.

Operands

Operand name	Omission	Description
listener_id	Not possible	Specify "__sr-listener".

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
> asadmin create-http-listener --listeneraddress 0.0.0.0 --listenerport ${SESSIONRECOVERY_PORT} --
defaultvs __sessionrecovery --target IJServer001 __sr-listener
Command create-http-listener executed successfully.
```

Solaris32/64 Linux32/64

```
> asadmin create-http-listener --listeneraddress 0.0.0.0 --listenerport \${SESSIONRECOVERY_PORT} --
defaultvs __sessionrecovery --target IJServer001 __sr-listener
Command create-http-listener executed successfully.
```

10.1.22.2 create-virtual-server Subcommand

Synopsis

```
create-virtual-server [--terse[=true|=false]] [--echo[=true|=false]] [--interactive[=true|=false]] [--host host] [--port port] [--secure[=true|
=false]] [--user admin_user] [--passwordfile file_name] [--help] --target target virtual_server_id
```

Description

This creates the virtual server for control.

For details on the asadmin command, refer to "10.1 asadmin".

Options

Option name	Mnemonic name	Description
--terse	-t	Refer to "asadmin Command Common Options".
--echo	-e	Refer to "asadmin Command Common Options".
--interactive	-I	Refer to "asadmin Command Common Options".
--host	-H	Refer to "asadmin Command Common Options".
--port	-p	Refer to "asadmin Command Common Options".
--secure	-s	Refer to "asadmin Command Common Options".
--user	-u	Refer to "asadmin Command Common Options".
--passwordfile	None	Refer to "asadmin Command Common Options".
--help	-?	Refer to "asadmin Command Common Options".
--target	None	Specify the name of the IJServer cluster that creates the virtual server for control.

Operands

Operand name	Omission	Description
virtual_server_id	Not possible	Specify "__sessionrecovery".

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
> asadmin create-virtual-server --target IJServer001 __sessionrecovery  
Command create-virtual-server executed successfully.
```

10.2 appclient

Name

appclient

Start the application client container.

Synopsis

```
appclient {classfile|-client appjar} [-mainclass appClass-name|-name display-name] [-xml xml] [-textauth] [-user username] [-password password] [app-args]
```

Description

Start the application client container. If you require the JVM option to be specified, specify it in the VMARGS environment variable. For details, refer to "Setting the Java EE Application Client Environment".

Options

Option name	Description
-client	<p>Specify the path of the client stub JAR file. To download the client stub JAR file, deploy the module containing the client JAR file, select the deployed module using the Interstage Java EE Admin Console, then download the stub using the "Download client stub" operation, or download it using the asadmin command <code>get-client-stubs</code> subcommand.</p> <p>It is possible to specify the main class name of the Java EE application client deployed in the directory that executes the command in place of the <code>-client</code> option. However, it is not recommended to use this, as the operation method may become complex.</p> <p>Note If the specified client stub JAR file contains a WAR file, execution of the Java EE application client might fail.</p>
-mainclass	<p>Specify the main class that has the main method executed by the client container in the full package name. The default is the main class defined in the manifest file of the client JAR file.</p> <p>Either the <code>-mainclass</code> option or the <code>-name</code> option must be specified if the client stub JAR file is obtained through the multiple client JAR files deployed in the EAR file.</p>
-name	<p>Specify the display name.</p> <p>Specify the name that is specified in the <code>display-name</code> tag of the client JAR file <code>application-client.xml</code> file to be executed.</p> <p>Either the <code>-mainclass</code> option or the <code>-name</code> option must be specified if the client stub JAR file is obtained through the multiple client JAR files deployed in the EAR file.</p>
-xml	<p>Specify the Interstage ACC deployment descriptor (<code>sun-acc.xml</code>).</p> <p>If not specified, use the following files.</p> <p><code>Windows32/64</code></p> <p>[Java EE common directory]\domains\interstage\config\sun-acc.xml</p> <p><code>Solaris32/64</code> <code>Linux32/64</code></p>

Option name	Description
	[Java EE common directory]/domains/interstage/config/sun-acc.xml
-textauth	Specify this if the user name and password entry is requested by the console when the default security call-back handler is used in EJB calls for which IIOP client authentication has been set, or web service calls for which Basic authentication has been set. If -user option and -password option are specified, it will become invalid.
-user	Specify the user name when the default security call-back handler is used in EJB calls for which IIOP client authentication has been set, or web service calls for which Basic authentication has been set. Specify this along with the -password option.
-password	Specify the password when the default security call-back handler is used in EJB calls for which IIOP client authentication has been set, or web service calls for which Basic authentication has been set. Specify this along with the -user option.

Operands

Operand name	Omission	Description
app-args	Possible	Specify the argument that calls the main class main method.

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

Default sun-acc.xml reference privileges [Solaris32/64](#) [Linux32/64](#)

In the default settings, reference privileges for sun-acc.xml are not assigned to general users.

For this reason, if a general user executes applclient without specifying the -xml option, the following message is output and the execution of the command will fail.

```
$ applclient -client MyApplicationClient.jar
com.sun.enterprise.applclient.UserError:
Client Container xml:
[/var/opt/FJSVisjee/domains/interstage/config/sun-acc.xml] not found or
unable to read.
You may want to use the -xml option to locate your configuration xml.
Usage :
    applclient {-client <appjar>|<classfile>} [-mainclass <appClass-name>|
-name <display-name>] [-xml <xml>] [-textauth] [-user <username>] [-password
<password>] [app-args]
```

In the -xml option, specify a configuration file that the general user can reference, and then re-execute the command.

Example

Execute as follows:

```
>applclient -client MyApplicationClient.jar -mainclass com.mycompany.client.MyClass -xml sun-acc.xml test
```

10.3 capture-schema

Name

capture-schema

Capture the database schema information.

Synopsis

```
capture-schema -username name -password password -dburl url -driver jdbcdriver -out aFilename [-schemaname aSchemaname] [-table aTablename]...
```

Description

Capture the database schema information.

If the CMP Entity Bean is used, capture the table meta-data from the database using this command before deployment and then store it in the file.

To execute this command, set the JDBC driver JAR file to be used in the console environment variable CLASSPATH that executes the command.

There is no need to set the Java DB JDBC driver JAR file in the CLASSPATH environment variable.

If the size of the database schema information to be captured is large, for example because the specified database has a huge number of tables, it may be necessary to execute -Xmx tuning. For details on -Xmx tuning, refer to "[Setting the Command Process JavaVM Option](#)".

Options

Option name	Description
-username	Specify the user name that is used in the authentication access to the database. Case-sensitivity will apply (*1). In Oracle database, specify the user who is given the ANALYZE ANY TABLE authority.
-password	Specify the password that is used for the access to the selected database. A password alias cannot be used. Case-sensitivity will apply (*1).
-dburl	Specify the JDBC URL that the driver presumes during the access to the database.
-driver	Specify the JDBC driver class name (java.sql.Driver implementation class) specified in the CLASSPATH.
-out	Specify the output file name. If ".dbschema" does not finish, this extension is added. Note that the output file name and path must not exceed the OS maximum string length.
-schemaname	Specify the user schema name to be captured. Case-sensitivity will apply (*1). If omitted, meta-data of the table from all schemas that this user can access is captured. If the same table name exists in the multiple schemas, an error may occur in the mapping while in operation. In Oracle database, the schema name settings are essential.
-table	Specify the table name to be captured. Case-sensitivity will apply (*1). If omitted, all tables in the database (if the schema name is specified, it is within the specified schema) are captured. If the schema name is not specified, the meta-data of all tables from all schemas that this user can access are captured.

*1)

Regarding case-sensitivity of the string which is set for the option value, match the case with the string set for the connection target database.

If double-quotes are not assigned to the identifier when the SQL statement which creates the schema name is executed, the question of whether uppercase or lowercase is used will depend on the database. For details, refer to the database manual.

Return value

0

Setting the command process JavaVM option

When the capture-schema command is started, the Java application start command (the java command) is used internally, the same as for normal Java applications.

To specify an option (such as the -Xmx option) that can be specified in this Java application start command, specify the VMARGS environment variable.

```
VMARGS= -Xmx512m
```

Notes

- Note that the VMARGS environment variable is even used in the asadmin command process JavaVM option settings.
- Do not specify the -classpath option.
- If an invalid value is specified, as shown below, a java command error will occur. For details on how to specify the option, refer to the java command explanation. If a value that contains spaces is specified, the value must be enclosed in double quotation marks (").

When an invalid option is specified

```
>set VMARGS=-option
>capture-schema
Unrecognized option: -option
Could not create the Java virtual machine.
```

When invalid spaces are specified

```
>set VMARGS=option1 option2
>capture-schema
Exception in thread "main" java.lang.NoClassDefFoundError: option1
```

Examples

The examples below show the capture-schema command definition for the connection target database. The connection information for the database is displayed on the Console which was used to execute the command.

Symfoware

```
> capture-schema -username user1 -password pwd1 -dburl jdbc:symford://dbhost:26551/resource -driver
com.fujitsu.symfoware.jdbc.SYMDriver -schemaname SAMPLESCHEMA -table COMPANY -table
EMPLOYEE -out SAMPLESCHEMA_COMPANY-EMPLOYEE
```

Oracle

```
>capture-schema -username user1 -password pwd1 -dburl jdbc:oracle:thin:@dbhost:1521:mysid -driver
oracle.jdbc.OracleDriver -schemaname SAMPLESCHEMA -table COMPANY -table EMPLOYEE -out
SAMPLESCHEMA_COMPANY-EMPLOYEE
```

SQL Server

```
> capture-schema -username user1 -password pwd1 -dburl jdbc:sqlserver://dbhost:1433;databaseName=master
-driver com.microsoft.sqlserver.jdbc.SQLServerDriver -schemaname SAMPLESCHEMA -table COMPANY
-table EMPLOYEE -out SAMPLESCHEMA_COMPANY-EMPLOYEE
```

Java DB

```
> capture-schema -username user1 -password pwd1 -dburl jdbc:derby://dbhost:1527/samples -driver
org.apache.derby.jdbc.ClientDriver -schemaname SAMPLESCHEMA -table COMPANY -table EMPLOYEE
-out SAMPLESCHEMA_COMPANY-EMPLOYEE
```

10.4 ijdasstart

Name

ijdasstart

Starts Interstage Java EE DAS service.

Synopsis

ijdasstart

Description

The ijdasstart command starts the Interstage Java EE DAS service.

Options

Option name	Description
-debug	Starts the Interstage Java EE DAS service Java VM debug.

Return value

0: Normal end

1: An error occurred.

Notes

Execute this command with administrator authority.

Example

Execute as follows:

```
>ijdasstart
ijdasstart: INFO: ijdas10000: Interstage Java EE DAS service has started.
```

10.5 ijdasstat

Name

ijdasstat

Interstage Java EE DAS service status display.

Synopsis

ijdasstat

Description

The ijdasstat command displays the status of Interstage Java EE DAS service.

The information displayed by the command is described in following table.

Title	Description
Started	Service has been started
Stopped	Service has been stopped
Starting	Service is being started

Title	Description
Stopping	Service is being stopped
Unknown	Unknown state (*1)

Return value

- 0: Service has been started
- 1: Service has been stopped
- 2: Service is being started
- 3: Service is being stopped
- 4 : Unknown state (*1)
- 99: Failed to obtain the Started status

*1)

An error occurred obtaining the status of the Interstage Java EE DAS service, so the status could not be confirmed. The Interstage Java EE DAS service may have hung up.

If the status is unknown, wait for a while then re-execute `ijdasstat` and check the status again. If it takes a while for this command to return and the result is "not running", then refer to "Abnormalities in Interstage Java EE DAS Service" > "If the Interstage Java EE DAS Service status collection command return takes a long time".

Note

Execute this command with administrator authority.

Example

Execute as follows:

```
> ijdastat
Name                               Status
-----
Interstage Java EE DAS started
```

10.6 ijdastop

Name

`ijdasstop`

Stops Interstage Java EE DAS service.

Synopsis

`ijdasstop`

Description

The `ijdasstop` command stops the Interstage Java EE DAS service.

Return value

- 0: Normal end
- 1: An error occurred.

Option name	Description
	<p>The encoding which can be used is as follows:</p> <ul style="list-style-type: none"> - SJIS - EUC - UTF-8
-ssl	<p>Specify the security operation mode that will be used for the Java EE feature operation management HTTP listener and the Interstage Management Console. If this is omitted, the setting will be "true".</p> <p>One of the following can be specified:</p> <ul style="list-style-type: none"> - true: SSL encryption communication is used. - false: SSL encryption communication is not used. <p>Note: Differences in case-sensitivity will be ignored.</p>
-adminport	Specify the admin port number (min 1 character, max 65535 characters). The default port is "12001". (*1)
-httpport	Specify the http port number (min 1 character, max 65535 characters). The default port is "28080". (*1)
-iiopport	Specify the IIOP port number (min 1 character, max 65535 characters). The default port is "23600". (*1)
-iiopsslport	Specify the IIOP_SSL port number (min 1 character, max 65535 characters). The default port is "23601". (*1)
-iiopmutualauthport	Specify the IIOP_MUTUALAUTH port number (min 1 character, max 65535 characters). The default port is "23602". (*1)
-jmxadminport	Specify the JMX_ADMIN port number (min 1 character, max 65535 characters). The default port is "8686". (*1)
-commdir	<p>Specify the full path of the Java EE common directory.</p> <p>If this is specified at the same time as -existing, specify the Java EE common directory on the shared disk of the cluster system. (*2)</p> <p>The values that can be specified and the defaults are shown below.</p> <p>Windows32/64</p> <ul style="list-style-type: none"> - Characters that can be specified: Alphanumerics, "", '+', '-', '@', '.', '_', and path separators - Characters that can not be specified: DOS device name - Character count that can be specified: Maximum of 50 bytes - Default: C:\interstage\F3FMisjee\var <p>Solaris32/64 Linux32/64</p> <ul style="list-style-type: none"> - Characters that can be specified: Alphanumerics, "", '+', '-', '@', '.', '_', and path separators - Character count that can be specified: Maximum of 239 bytes

Option name	Description
	<p>- Default: /var/opt/FJSVisjee</p> <p> Note</p> <hr/> <p>If the specified directory exists, then its owner will be the system administrator, and system administrator write privileges will be set. The following directory path cannot be used:</p> <ul style="list-style-type: none"> - /opt/FJSVisjee/var - /opt/FJSVisjee/var subdirectories - /var/opt/FJSVisjee subdirectories
-javaversion	<p>In the server package</p> <p>Specify the JDK version used by the Java EE function. The default JDK version is "JDK6".</p> <p>One of the following can be specified:</p> <ul style="list-style-type: none"> - JDK6 <p>Note:</p> <p>Uppercase and lowercase are treated as one and the same thing (there is no such thing as case-sensitivity).</p> <p>Java EE does not support JDK7.</p> <hr/> <p>In the client package</p> <p>Specify the JDK or JRE version used by the Java EE function. The default JDK version is "JDK6".</p> <p>One of the following can be specified:</p> <ul style="list-style-type: none"> - JDK6 - JRE6 <p>Note:</p> <p>Uppercase and lowercase are treated as one and the same thing (there is no such thing as case-sensitivity).</p> <p>Java EE does not support JDK7/JRE7.</p>
-existing	<p>Specify this to share the Java EE common directory that has already been prebuilt by another server.</p> <p>Specify this to build an operating environment that is linked with the cluster service. For details on cluster service linkage, refer to "Running High Reliability Systems".</p> <p>If this is specified in a non-Enterprise Edition server, an error will occur.</p>

*1)

- Do not set the values below for the port number used by the Java EE runtime environment, or other services or applications in the system might not run normally.
 - Port numbers used by other services in the system or applications in the system
 - Port number for space assigned by the system dynamically (the ephemeral port)
- **Solaris32/64 Linux32/64**

If the service operator user does not have system administrator privileges, do not set a value between 1 and 1023, or the Interstage Java EE DAS service/Interstage Java EE Node Agent service will not run normally.

*2)

The Java EE common directory can only be shared using a cluster service shared disk.

Java EE Initialization Configuration File Description Format

Describe the Java EE initialization configuration file description format specified in the `-file` option in the format "item name=value". Use the linefeed delimiter to separate each item.

In the Java EE initialization configuration file, escape the characters shown below using a backslash ('\'). If they are not escaped, it might not be possible to read the settings information correctly.

- '#', '!', '=', ':', '\', '"', ''

The definition items that can be specified in the Java EE initialization configuration file are explained below.

Item name	Synopsis	Corresponding command option
SSL	Use of SSL encryption communication	-ssl
DOMAIN_ADMIN_PORT	Admin port	-adminport
HTTP_LISTENER_PORT	HTTP port	-httpport
IOP_PORT	IOP port	-iopport
IOP_SSL_PORT	IOP_SSL port	-iopsslport
IOP_MUTUALAUTH_PORT	IOP_MUTUALAUTH port	-iopmutualauthport
JMX_ADMIN_PORT	JMX_ADMIN port	-jmxadminport
COMMON_DIR	Java EE common directory	-commondir
JAVA_VERSION	JDK version (in the client, this is JRE) used by Java EE function	-javaversion
EXISTING	Select whether to share the prebuilt Java EE common directory. - true: Shared - Others: Not shared Note: Uppercase and lowercase are treated as one and the same thing (there is no such thing as case-sensitivity).	-existing

Note

- Item names are case-sensitive. Use uppercase.
- Definition items not mentioned in the table above will be ignored.
- Lines containing only space characters, and lines in which the first non-space space character is ASCII # or ! are ignored.
- Spaces between the item name and '=', and spaces between '=' and the value are ignored.
- The order in which items are set is not relevant. If the same definition item (such as COMMON_DIR) is set more than once, then there is no guarantee that the value defined first will be used.

Example

Windows32/64

```
SSL=true
DOMAIN_ADMIN_PORT=12001
HTTP_LISTENER_PORT=28080
IIOP_PORT=23600
IIOP_SSL_PORT=23601
IIOP_MUTUALAUTH_PORT=23602
JMX_ADMIN_PORT=8686
COMMON_DIR=C:\\Interstage\\F3FMisjee\\var
JAVA_VERSION=JDK6
EXISTING=true
```

Solaris32/64 Linux32/64

```
SSL=true
DOMAIN_ADMIN_PORT=12001
HTTP_LISTENER_PORT=28080
IIOP_PORT=23600
IIOP_SSL_PORT=23601
IIOP_MUTUALAUTH_PORT=23602
JMX_ADMIN_PORT=8686
COMMON_DIR=/var/opt/FJSVisjee
JAVA_VERSION=JDK6
EXISTING=true
```

Message

Confirming the execution of the command

When the command is executed, the messages below are displayed, asking for user's confirmation.

To initialize the Java EE operating environment, specify 'y'. To abort processing, specify 'n'.

If '-y' is specified when the command is executed, however, these messages are not output.

- In the server package

```
Note: All message brokers must be stopped before this command is executed.
Initialize Java EE environment, are you sure (y/n)?
```

- In the client package

```
Initialize Java EE environment, are you sure (y/n)?
```

Return value

0: Normal end

1: An error occurred.

Notes

- If this command is executed in batch, an error might occur. If it does, re-execute the command.
- If the items specified in the command option and in the Java EE initialization configuration file are identical, the item specified in the command option will be used.

Notes (In the server package)

- When this command is executed, the Java EE common directory is deleted and a new one created.

As a result, resources created before the command is executed, such as Interstage Java EE Node Agent services, Interstage Java EE DAS services, IJServer clusters and resources, and applications deployed by the user, are deleted. Investigate backing up these resources using the backup/restore function before this command is executed.

- Takeover of resources when the Java EE common directory is changed

If you want to change the Java EE common directory after the installation, the ijinit command and the backup/restore function can be used together for the takeover of resources, such as prebuilt IJServer clusters and resources, and applications deployed by the user, to the environment after the Java EE common directory is changed.

Take the prebuilt resources over to the environment after the Java EE common directory is changed according to the following procedure:

1. Back up the resources using the ijbackup command (for details, refer to "12.1 ijbackup")
2. Initialize
 - Specify the Java EE common directory and then execute the ijinit command - make sure that the JDK version after the initialization is the same as that of the backup resources. If a Java EE non-common directory item is specified, then it is overwritten with the pre-backup value during resource restoration
3. Restore the resources using the ijrestore command (for details, refer to "12.2 ijrestore").

- Before this command is executed, stop the following:

- All IJServer clusters
- All message brokers
- All Java DBs
- Interstage Java EE Node Agent services
- Interstage Java EE DAS services

If an IJServer cluster, Interstage Java EE Node Agent service, or Interstage Java EE DAS service is still running, the command operation will result in an error.

If a message broker or Java DB is still running, the command operation might not result in an error.

- Solaris32/64 Linux32/64

Before this command is executed, stop the web server for the Interstage Management Console otherwise the connection to the Interstage Java EE Admin Console from the web browser might fail.

After this command, execute the ismngconsolestop and ismngconsolestart commands, then restart the web server for the Interstage Management Console.

- The following ports are initialized when this command is executed:

Service name	Usage	Port number/protocol
Interstage Java EE DAS service	HTTP listener port for operation management	12001/tcp
Interstage Java EE DAS service	HTTP listener port	28080/tcp
Interstage Java EE Node Agent service	RMI registry connection port used by the JMX connector	29696

- Windows32/64

If a port number is being used, or has been predefined for another initialization command item, they are initialized when this command is executed so that they can be used.

Solaris32/64 Linux32/64

If a port number has been predefined for another initialization command item, it is initialized when this command is executed so that it can be used.

If you want to reference or change these ports when the command is executed, refer to "Port Tuning".

- When this command is executed, the preset service operator user is initialized as the root (except when "EXISTING=true" is specified for the -existing option or in the Java EE initialization configuration file).

If the service operator user is not root, then the message below will be output. Re-execute the ijsetoperatorid command if necessary.

If the service operator user is changed to root, then the message below will be output:

```
INFO: ISJEE_IJSETOPID001: The service operation user was changed to root.
```

- Windows32/64

In environments in which the Windows firewall function is enabled, this command might cause a dialog box to be displayed, with the values below:

- Name: 'Java(TM) 2 Platform Standard Edition binary'
- Issued By: 'FUJITSU LIMITED'

Select [Unblock] in the dialog box, then re-execute this command. If a dialog box is displayed with values different from the ones above, then take action according to the warning content.

Notes (In the client package)

- If an option except '-y', '-file', or '-javaversion' is specified, an error will occur.

Example

Execute as follows:

In the server package

```
>ijinit
<Input items list>
Note: All message brokers must be stopped before this command is executed.
Initialize Java EE environment, are you sure (y/n)?y
<The rest has been omitted>
```

In the client package

```
>ijinit
Initialize Java EE environment, are you sure (y/n)?y
<The rest has been omitted>
```

10.8 ijsetoperatorid

Name

ijsetoperatorid

Sets the service operator user.

Synopsis

Solaris32/64 Linux32/64

ijsetoperatorid [-l] | [-u user name]

Description

This command sets the service operator user. It changes the Interstage Java EE DAS service, Interstage Java EE Node Agent service, and IJServer cluster/server instance process execution privileges to the service operator user.

It also sets appropriate security privileges that are based on the Secure By Default policy for executable files or configuration files, and program resources such as various logs.

This command can be used in Solaris/Linux.

This command can only be executed by the system administrator.

Options

Option name	Description
-l	Displays the service operator currently set.
-u	Specify the service operator user. A maximum of 8 characters can be specified for the user name that will make the Interstage operator group the primary group.

Return value

0: Normal end

1: An error occurred.

Notes

- Follow the operating system guidelines in using a user name for the service operator user, otherwise the Java EE service might not start or fail.
- When the `issetsecuritymode` or `ijinit` command is executed (without the `-existing` option), the service operator user is initialized as the root.
If necessary, execute the `ijsetoperatorid` command to reset the service operator user.
- If the service operator user is changed to root, then the message below will be output:

```
INFO: ISJEE_IJSETOPID001: The service operation user was changed to root.
```

- Before executing this command with the `-u` option is specified, stop the following:
 - All IJServer clusters
 - All message brokers
 - Interstage Java EE Node Agent services
 - Interstage Java EE DAS services

If an IJServer cluster, Interstage Java EE Node Agent service, Interstage Java EE DAS service, or message broker is still running, then the command execution will result in an error.

- If the service operator user is changed, refer to "Notes on Resource Access Privileges when the Service Operator User has been Changed" and assign the required privileges.

Example

Execute as follows:

Specify the service operator user.

```
>ijsetoperatorid -u apuser  
Command ijsetoperatorid executed successfully.
```

This displays the service operator user that is currently set.

```
>ijsetoperatorid -l  
apsuser
```

10.9 imqbrokerd

Name

imqbrokerd

Starting the message broker.

Synopsis

```
imqbrokerd [[-Dproperty=value]...] [-force] [-h|-help] [-javahome javahome|-jrehome jrehome] [-name name] [-port #] [-remove instance]  
[-reset data] [-shared] [-s|-silent] [-tty] [-v|-version] [-vmargs vmarguments]
```

Description

Start the message broker. It can also be deleted if the message broker resource that was started before is no longer required.

Options

Option name	Description
-D	This is used for various settings in the message broker. For details on the properties that can be specified, refer to "Message Broker Option Properties". Example: -Dimq.system.max_size=10m
-force	No message is displayed asking you to confirm whether or not it is OK to remove the message broker material.
-help -h	Display the usage information.
-javahome -jrehome	Specify the Java VM path that can operate the message broker.
-name	The message broker instance name that was specified in the argument is started (*1). When this is omitted, the message broker instance name is "imqbroker".
-port	Specify the message broker port number. This port is used as the port mapper port number. When this is omitted, the port is 7676.
-remove	Remove unnecessary message broker material and associated setting files, log files, persistence store and other related files and directories. The message broker must be stopped when this command is executed. Specify the "instance" in the argument.
-reset	Delete the message broker data created dynamically. - store Delete all data stores including all messages, data related to the messages, durable subscription and transaction information. - messages Delete all persistent messages. - durables Delete all durable subscription.

Option name	Description
	- props Delete all properties stored in message broker material.
-shared	Execute the jms service using the common thread pool model.
-silent -s	No output is displayed on the terminal console.
-tty	Display all messages on the terminal console, in addition to the log files. By default, only WARNING and ERROR are displayed.
-version -v	Display and complete the version information. The following information is displayed: - Product Compatibility Version / Protocol Version Product version information - Target JMS API version Supported JMS API version information - Java Runtime Information about the used Java Runtime - Java Class Path Class path information using in the message broker - IMQ_HOME / IMQ_VARHOME Message broker environment information
-vmargs	Deliver vmarguments to the Java VM. To include the space in the vmarguments, enclose it with the double quotation.

*1)

The following characters must not be included in the message broker instance name that is specified in the argument:

- Symbols that cannot be used in the file name (\ / : * ? " < > | .)
- Spaces
- DOS device name

Return value

0: Ended normally

Other than 0: Ended abnormally

Note

Only a single user can be registered to the anonymous group.

Example

Execute as follows:

```
>imqbrokerd -s -name TestBroker -port 37676
```

10.10 imqcmd

Name

imqcmd

Management of the message broker

Synopsis

1. Execution of the subcommand

```
imqcmd subcommand "option "
```

2. Display of Help

```
imqcmd {-help|-h|-Help|-H}
```

3. Display of the version information

```
imqcmd {-version|-v}
```

Description

It changes the message broker definition, creates the physical storage destination, and changes and deletes the definition.

Subcommands are as follows:

Subcommands	Description
create dst	Create the physical destination.
destroy cxn	Destroy the connection.
destroy dst	Destroy the physical destination.
destroy dur	Destroy the durable subscriptions.
list cxn	Display the list of the connections that message broker is managing.
list dst	Display the list of the physical destinations that message broker is managing.
list dur	Display the list of the durable subscriptions.
list svc	Display the list of the services that message broker is managing.
pause bkr	Pauses all services managed by the message broker, except the admin connection service.
pause dst	Pause one or all physical destinations.
pause svc	Pause one service.
purge dst	Purge all messages of physical destinations without destroying them.
purge dur	Purge all messages of durable subscriptions without destroying them.
query bkr	Display and inquire the message broker information.
query cxn	Display and inquire the connection information.
query dst	Display and inquire the physical destination information.
query svc	Display and inquire the service information.
quiesce bkr	Stop accepting a new connection by the message broker.
restart bkr	Restart the message broker.
resume bkr	Resumes all services managed by the message broker, except the admin connection service.
resume dst	Resume one or all physical destinations.
resume svc	Resume the service.
shutdown bkr	Shutdown the message broker.
unquiesce bkr	Start accepting a new connection by the message broker.
update bkr	Update the message broker property.

Subcommands	Description
update dst	Update the physical destination of the property.
update svc	Update the service property.

Options

Option name	Mnemonic name	Description
-b		Specify the message broker host name and port number in "host name:port number" format. To specify only the host name, use "host name" format. To specify only the port number, use ":port number" format. The default host name is "localhost". The default port is "7676".
-help	-h	Display the usage Help.
-Help	-H	Display usage Help, property list and examples.
-javahome		A substitute Java compatible runtime is specified.
-rtm		The command timeout is specified in seconds. The default is "10". If "-1" is specified, the command timeout is 10 seconds. Additionally, if "0" is specified, the command timeout is unlimited.
-rtr		The number of command retries is specified. The default is "5". If "-1" or "0" is specified for the number of command retries, the number of command retries is "5".
-s		Silent mode. The output is not displayed.
-u		The administrator user name is specified.
-version	-v	Display the version information. The following information is displayed: - Product Compatibility Version / Protocol Version Product version information - Target JMS API version Supported JMS API version - Java Runtime Version Information about the used Java Runtime

Subcommands

`create dst -t physical destination type -n physical destination name [-o property name=value [-o property name=value]...]`

Create the physical destination.

Set either q (for Queue) or t (for Topic) in the physical destination type. The physical destination name can only contain alphanumerics, underscores (_), and dollar signs (\$) without spaces. It must start with a letter, underscore (_), or dollar sign (\$). It cannot start with "mq".

For details on the physical destination properties, refer to "Physical Storage Destination Generation or Update Properties".

`destroy cxn -n connection ID`

Destroy the connection.

`destroy dst -t physical destination type -n physical destination name`

Destroy the physical destination.

Set either q (for Queue) or t (for Topic) in the physical destination type (if -t q is specified, then physical destination name cannot be "mq.sys.dmq" (dead message queue)).

`destroy dur -c client ID -n subscriber identification name`

Destroy the durable subscription.

Note

Before executing this command, use the list dur subcommand to make sure that the deletion target durable subscription status is 'INACTIVE'.

`list cxn [-svn service name]`

Display the list of the connection service that message broker is managing.

Set either admin(for admin connection service) or jms(for jms connection service) in the service name.

Display all connections on the message broker for the specified connection service. If the connection service is not specified, all connections are displayed.

Note

If this command is executed while the message broker connection is closed, an IJMQ message is output in the user name of the connection that is undergoing disconnection processing. If an IJMQ message is output in the user name, refer to the User Action of the message and take action.

The reference method using the imqcmd list cxn command is explained below.

An example of the display and the connection information that is displayed is shown below:

Example output:

```
imqcmd list cxn

Listing all the connections on the broker specified by:

-----
Host          Primary Port
-----
localhost     7676

-----
-----
Connection ID      User      Service    Producers    Consumers    Host
-----
504153610318406656  guest    jms        0             0
127.0.0.1
504153611584544512  admin    admin      1             1
127.0.0.1
```

Connection information that is displayed:

Item that is displayed	Content
Host (first host listed)	This is the host name that is given to the message broker when it starts.
Primary Port	This is the port number that is given to the message broker when it starts.
Connection ID	This is a unique ID for connection to the message broker.
User	This is the connected user name.
Service	This is the connected service name. - admin : admin connection service

Item that is displayed	Content
	- jms : jms connection service
Producers	This is the connected number of producers.
Consumers	This is the connected number of consumers.
Host (second host listed)	This is the connected client IP address.

list dst [-t physical destination type] [-tmp]

Display the list of the physical destination that message broker is managing.

Display the list all physical destination types that are specified by the -t option.

Set either q(for Queue) or t(for Topic) in the physical destination type.

If the physical destination type is not specified, all physical destination are displayed. If the -tmp option is specified, temporary physical storage destinations are also listed.

The reference method using the imqcmd list dst command is explained below.

An example of the display and the physical storage destination information that is displayed is shown below:

Example output:

When the -t option is not specified:

```
imqcmd list dst

Listing all the destinations on the broker specified by:

-----
Host      Primary Port
-----
localhost  7676

-----
-----
Name      Type      State      Producers      Consumers      Msgs
          UnAck    Avg Size    Total Wildcard Total Wildcard Count
-----
mq.sys.dmq Queue  RUNNING   0      -            0      -            0
0          0        0.0
topic     Topic  RUNNING   0      0            0      0            0
0          0        0.0
```

When -t q (physical destination type is Queue) is specified:

```
imqcmd list dst -t q

Listing all the destinations on the broker specified by:

-----
Host      Primary Port
-----
localhost  7676

-----
-----
Name      Type      State      Producers      Consumers      Msgs
          UnAck    Avg Size    Active Backup  Count Remote
-----
mq.sys.dmq Queue  RUNNING   0      -            0      -            0
0          0        0.0
topic     Topic  RUNNING   0      0            0      0            0
0          0        0.0
```

```
-----
mq.sys.dmq Queue RUNNING 0          0          0          0          0
0          0.0
```

Physical storage destination information that is displayed

Item that is displayed	Content
Host	This is the host name that is given to the message broker when it starts.
Primary Port	This is the port number that is given to the message broker when it starts.
Name	This is the display target physical storage destination name.
Type	This is the physical storage destination type. <ul style="list-style-type: none"> - Topic - Topic(temporary) - Queue - Queue(temporary)
State	The physical storage destination status is displayed. <ul style="list-style-type: none"> - RUNNING: Started status - PAUSED: Paused status - PRODUCERS_PAUSED: Sending paused status - CONSUMERS_PAUSED: Receipt paused status
Producers - Total (*1)	This is the number of producers that are connected to the physical storage destination.
Producers - Wildcard (*1)	This is an unsupported item.
Producers (*2)	This is the number of producers that are connected to the physical storage destination.
Consumers - Total (*1)	This is the number of consumers that are connected to the physical storage destination.
Consumers - Wildcard (*1)	This is an unsupported item.
Consumers - Active (*2)	This is the number of consumers that can receive messages from the physical storage destination.
Consumers - Backup (*2)	This is the number of consumers that queue to receive messages from the physical storage destination.
Msgs - Count	This is the number of messages that has accumulated in the physical storage destination.
Msgs - Remote	This is an unsupported item.
Msgs - UnAck	Total number of sent/received messages that are being processed for transaction and number of messages that are being processed for delivery to connected consumers
Msgs - Avg Size	This is the average size (bytes) of messages that have accumulated in the physical storage destination.

*1)
 Displayed when -t is not specified or -t t is specified

*2)
 Displayed when -t q is specified

list dur [-d topic name]

Display the list of the durable subscription.

Specify the name of a physical destination whose type is "Topic" for the -d option.

Display the list of the durable subscription of physical destination specified by the topic name.

If the topic name is not specified, all durable subscription are displayed.

The reference method using the imqcmd list dur command is explained below.

An example of the display and the DurableSubscription information that is displayed is shown below:

Example output:

When -d option is not specified:

```

imqcmd list dur

Listing all durable subscriptions on the topic 'topic' on the broker
specified by:

-----
Host          Primary Port
-----
localhost    7676

-----
Durable Sub. Name  Client ID  Destination Name  Number of Messages
Durable Sub. State
-----
a                 a_cid     topic001         0                  ACTIVE
a                 cid       topic002         0                  INACTIVE

```

When -d topic is specified for the physical destination name:

```

imqcmd list dur -d topic

Listing all durable subscriptions on the topic 'topic' on the broker
specified by:

-----
Host          Primary Port
-----
localhost    7676

-----
Durable Sub. Name  Client ID  Number of Messages  Durable Sub. State
-----
a                 a_cid     0                   ACTIVE
a                 cid       0                   INACTIVE

```

DurableSubscription information that is displayed

Item displayed	Content
Host	This is the host name that is given to the message broker when it starts.
Primary Port	This is the port number that is given to the message broker when it starts.
Durable Sub. Name	This is the subscriber identification name.
Client ID	This is the ID that is set per connection.
Destination Name (*1)	This is the physical destination.
Number of Messages	This is the number of JMS client messages waiting to be delivered.
Durable Sub. State	The status of the durable subscription is displayed.

Item displayed	Content
	<ul style="list-style-type: none"> - ACTIVE: JMS client active status. - INACTIVE: JMS client is inactive or does not exist.

*1)

Displayed when -d is not specified

list svc

Display the list of the service that message broker is managing.

The reference method using the imqcmd list svc command is explained below.

An example of the display and the service information that is displayed is shown below:

Example output:

```
imqcmd list svc

Listing all the services on the broker specified by:

-----
Host          Primary Port
-----
localhost     7676

-----
-----
Service Name  Port Number      Service State
-----
admin         49462 (dynamic)    RUNNING
httpjms       -                UNKNOWN
httpsjms     -                UNKNOWN
jms           44444 (static)   RUNNING
ssladmin     dynamic          UNKNOWN
ssljms       dynamic          UNKNOWN
```

Service information that is displayed:

Item that is displayed	Content
Host	This is the host name that is given to the message broker when it starts.
Primary Port	This is the port number that is given to the message broker when it starts.
Service Name	<p>This is the display target service name.</p> <p>The following services are unsupported.</p> <ul style="list-style-type: none"> - httpjms - httpsjms - ssladmin - ssljms
Port Number	<p>This is the port number that is used by the service.</p> <p>The value in parentheses is the port assignment method.</p> <ul style="list-style-type: none"> - dynamic: The port was assigned dynamically. - static: The port was assigned statically.
Service State	<p>The service status is displayed.</p> <ul style="list-style-type: none"> - RUNNING: Started status

Item that is displayed	Content
	<ul style="list-style-type: none"> - PAUSED: Paused status - UNKNOWN: Unknown status - QUIESCED: Quiesced connection status - UNINITIALIZED: Uninitialized status - INITIALIZED: Initialized status - STARTED: Started status - SHUTTINGDOWN: Shutting down status - STOPPED: Stopped status - DESTROYED: Destroyed status

pause bkr

Temporarily stop all services of the message broker.

Once the jms connection service of the message broker is stopped, the message cannot be sent and received.

Note

- The command returns normally, even if the jms connection service of the message broker has already paused.
- The admin connection service is not interrupted even if the jms connection service of the message broker is stopped; the imqcmd command can still be executed.
- Services paused using this command will remain in this state even after the message broker is restarted.

pause dst [-t physical destination type -n physical destination name] [-pst stop type]

Temporarily stop one or all physical destinations.

If the physical destination to be temporarily stopped is not specified, all physical destinations are temporarily stopped.

Set either q(for Queue) or t(for Topic) in the physical destination type.

In the -pst option, the temporarily stopped message delivery type is specified.

- CONSUMERS: Stop the message consumer distribution.
- PRODUCERS: Stop the message producer distribution.
- ALL: Stop all message distribution

Note

The command returns normally, even if the physical storage destination that was specified has already paused.

pause svc -n service name

Temporarily stop one service.

Set jms(for jms connected service) in the service name.

Note

- The admin connection service cannot be temporarily stopped.
- The command returns normally, even if the service that was specified has already paused.
- Services paused using this command will remain in this state even after the message broker is restarted.

purge dst -t physical destination type -n physical destination name

Purge all messages of the physical destination without destroying them.

Set either q(for Queue) or t(for Topic) in the physical destination type.

purge dur -c client ID -n subscriber identification name

Purge all messages of the durable subscription without destroying the durable subscription.

query bkr

Display and inquire the message broker information.

The reference method using the imqcmd query bkr command is explained below.

An example of the display and the message broker information that is displayed is shown below:

Example output:

```
imqcmd query bkr

Querying the broker specified by:

-----
Host          Primary Port
-----
localhost     7676

Version                4.4 Update 1
Instance Name          imqbroker
Broker ID
Primary Port           7676
Broker is Embedded     false
Instance Configuration/Data Root Directory /var/opt/FJSVisjee/
domains/interstage/imq

Current Number of Messages in System      0
Current Total Message Bytes in System     0

Current Number of Messages in Dead Message Queue 0
Current Total Message Bytes in Dead Message Queue 0

Log Dead Messages                false
Truncate Message Body in Dead Message Queue  false

Max Number of Messages in System      unlimited (-1)
Max Total Message Bytes in System     unlimited (-1)
Max Message Size                     70m

Auto Create Queues                 true
Auto Create Topics                  true
Auto Created Queue Max Number of Active Consumers unlimited (-1)
Auto Created Queue Max Number of Backup Consumers 0

Cluster ID
Cluster is Highly Available          false
Cluster Broker List (active)         mq://127.0.0.1:7676/
Cluster Broker List (configured)
Cluster Master Broker
Cluster URL

Log Level                          INFO
Log Rollover Interval (seconds)     604800
Log Rollover Size (bytes)           268435456
```

Message broker information that is displayed:

Item that is displayed	Content
Host	The host name that is given to the message broker when it starts is displayed.

Item that is displayed	Content
Primary Port (first primary port listed)	The port number that is given to the message broker when it starts is displayed.
Version	The message broker version is displayed.
Instance Name	The message broker instance name is displayed.
Broker ID	This is an unsupported item.
Primary Port (second primary port listed)	The port mapper function delegate port is displayed.
Broker is Embedded	This is an unsupported item.
Instance Configuration/Data Root Directory	The message broker resources storage destination is displayed.
Current Number of Messages in System	The number of messages that have accumulated in the message broker is displayed.
Current Total Message Bytes in System	The message size that has accumulated in the message broker is displayed.
Current Number of Messages in Dead Message Queue	The number of messages that have accumulated in the dead messages queue is displayed.
Current Total Message Bytes in Dead Message Queue	The message size that has accumulated in the dead messages queue is displayed.
Log Dead Messages	<p>The dead message log output setting is displayed.</p> <ul style="list-style-type: none"> - true: Dead message processing is output to a log. - false: Dead message processing is not output to a log.
Truncate Message Body in Dead Message Queue	<p>The dead messages accumulation method is displayed.</p> <ul style="list-style-type: none"> - true: The message body is destroyed, and just the property information is accumulated. - false: The message body is accumulated.
Max Number of Messages in System	The maximum number of messages that can accumulate in the message broker is displayed.
Max Total Message Bytes in System	The maximum message size that can accumulate in the message broker is displayed.
Max Message Size	The maximum size of a single message that that can accumulate in the message broker is displayed.
Auto Create Queues	<p>Whether the Queue physical storage destination can be generated automatically is displayed.</p> <ul style="list-style-type: none"> - true: Automatic generation is enabled. - false: Automatic generation is disabled.
Auto Create Topics	<p>Whether the Topic physical storage destination can be generated automatically is displayed.</p> <ul style="list-style-type: none"> - true: Automatic generation is enabled. - false: Automatic generation is disabled.
Auto Created Queue Max Number of Active Consumers	The maximum number of consumers that can connect to a Queue that was generated automatically is displayed.

Item that is displayed	Content
Auto Created Queue Max Number of Backup Consumers	The maximum number of consumers that can queue to receive Queue connections that were generated automatically is displayed.
Cluster ID	This is an unsupported item.
Cluster is Highly Available	This is an unsupported item.
Cluster Broker List (active)	This is an unsupported item.
Cluster Broker List (configured)	This is an unsupported item.
Cluster Master Broker	This is an unsupported item.
Cluster URL	This is an unsupported item.
Log Level	This is an unsupported item.
Log Rollover Interval	The interval for rotation of the output to a new log file is displayed.
Log Rollover Size	The file size for rotation of the output to a new log file is displayed.

query cxn -n connectionID

Display and inquire the connection information.

The reference method using the imqcmd query cxn command is explained below.

An example of the display and the connection information that is displayed is shown below:

Example output:

```

imqcmd query cxn -n 2965370868928146944

Querying the connection where:

-----
Connection ID
-----
2965370868928146944

On the broker specified by:

-----
Host          Primary Port
-----
localhost     7676

Connection ID      2965370868928146944
User               admin
Service           admin
Producers          1
Consumers          1
Host               127.0.0.1
Port               50508
Client ID
Client Platform    Message Queue/4.4 Update 1 (JMS; Linux
2.6.18-53.e15 i386)

```

Connection information that is displayed:

Item that is displayed	Content
Connection ID (first connection ID listed)	The connection ID that was specified when the command is executed is displayed.
Host (first host listed)	The host name that is given to the message broker when it starts is displayed.
Primary Port	The port number that is given to the message broker when it starts is displayed.
Connection ID (second connection ID listed)	The connection ID that displays the detail information is displayed.
User	The name of the user that uses the connection is displayed.
Service	The name of the service that uses the connection is displayed. - admin : admin connection service - jms : jms connection service
Producers	The number of producers that are connected in this connection is displayed.
Consumers	The number of consumers that are connected in this connection is displayed.
Host (second host listed)	The host IP address that is connected to this connection is displayed.
Port	The port number that is used by the service is displayed.
Client ID	The client ID that is set in the connection is displayed.
Client Platform	Client products and platforms that are connected in this connection are displayed.

query dst -t physical destination type -n physical destination name

Display and inquire the physical destination information.

Set either q(for Queue) or t(for Topic) in the physical destination type.

The reference method using the imqcmd query dst command is explained below.

An example of the display and the physical destination information that is displayed is shown below:

Example output:

When -t q (physical destination type is Queue) is specified:

```

imqcmd query dst -t q -n q1

Querying the destination where:

-----
Destination Name      Destination Type
-----
q1                    Queue

On the broker specified by:

-----
Host      Primary Port
-----
localhost 7676

Destination Name      q1
Destination Type      Queue
Destination State     RUNNING
Created Administratively true

Current Number of Messages
  Actual      0
  Remote     0

```

```

    Held in Transaction          0
Current Message Bytes
    Actual                      0
    Remote                      0
    Held in Transaction          0
Current Number of Producers      0
Current Number of Active Consumers 0
Current Number of Backup Consumers 0

Max Number of Messages          unlimited (-1)
Max Total Message Bytes         unlimited (-1)
Max Bytes per Message           unlimited (-1)
Max Number of Producers         100
Max Number of Active Consumers   unlimited (-1)
Max Number of Backup Consumers   0

Limit Behavior                   REJECT_NEWEST
Consumer Flow Limit             1000
Is Local Destination            false
Local Delivery is Preferred     false
Use Dead Message Queue          true
XML schema validation enabled    false
XML schema URI List             -
Reload XML schema on failure    false

```

When -t t is specified:

```

imgcmd query dst -t t -n t1

Querying the destination where:

-----
Destination Name      Destination Type
-----
t1                    Topic

On the broker specified by:

-----
Host      Primary Port
-----
localhost 7676

Destination Name      t1
Destination Type      Topic
Destination State     RUNNING
Created Administratively true

Current Number of Messages
    Actual              0
    Remote              0
    Held in Transaction 0
Current Message Bytes
    Actual              0
    Remote              0
    Held in Transaction 0
Current Number of Producers      0
Current Number of Producer Wildcards 0
Current Number of Consumers      0
Current Number of Consumer Wildcards 0

Max Number of Messages          unlimited (-1)
Max Total Message Bytes         unlimited (-1)

```

Max Bytes per Message	unlimited (-1)
Max Number of Producers	100
Limit Behavior	REJECT_NEWEST
Consumer Flow Limit	1000
Is Local Destination	false
Use Dead Message Queue	true
XML schema validation enabled	false
XML schema URI List	-
Reload XML schema on failure	false

Connection information that is displayed:

Item that is displayed	Content
Destination Name (first destination name listed)	The physical storage destination name that was specified when the command is executed is displayed.
Destination Type (first destination type listed)	The physical storage destination type that was specified when the command is executed is displayed.
Host	The host name that is given to the message broker when it starts is displayed.
Primary Port	The port number that is given to the message broker when it starts is displayed.
Destination Name (second destination name listed)	The physical storage destination name is displayed.
Destination Type (second destination type listed)	The physical storage destination type is displayed. <ul style="list-style-type: none"> - Queue - Queue(temporary) - Topic - Topic(temporary)
Destination State	The physical storage destination status is displayed. <ul style="list-style-type: none"> - RUNNING: Started status - PAUSED: Paused status - PRODUCERS_PAUSED: Sending paused status - CONSUMERS_PAUSED: Receipt paused status
Created Administratively	This is an unsupported item.
Current Number of Messages - Actual	The number of messages that have accumulated in the physical storage destination is displayed.
Current Number of Messages - Remote	This is an unsupported item.
Current Number of Messages - Held in Transaction	The number of messages that are being processed for transaction is displayed.
Current Message Bytes - Actual	The message size that has accumulated in the physical storage destination is displayed.
Current Message Bytes - Remote	This is an unsupported item.
Current Message Bytes - Held in Transaction	The message size that is being processed for transaction is displayed.
Current Number of Producers	The number of producers that are connected to the physical storage destination is displayed.

Item that is displayed	Content
Current Number of Active Consumers (*1)	The number of consumers connected to the physical storage destination that are currently active is displayed.
Current Number of Backup Consumers (*1)	The number of consumers connected to the physical storage destination that are currently waiting to become active is displayed.
Current Number of Producer Wildcards (*2)	This is an unsupported item.
Current Number of Consumers (*2)	The number of consumers connected to the physical storage destination is displayed.
Current Number of Consumer Wildcards (*2)	This is an unsupported item.
Max Number of Messages	The maximum number of messages that can accumulate in the physical storage destination is displayed.
Max Total Message Bytes	The maximum message size that can accumulate in the physical storage destination is displayed.
Max Bytes per Message	The maximum size of a single message that can accumulate in the physical storage destination is displayed.
Max Number of Producers	The maximum number of producers that can connect to the physical storage destination is displayed.
Max Number of Active Consumers	The maximum number of consumers that can receive messages from the physical storage destination is displayed.
Max Number of Backup Consumers	The maximum number of consumers that can queue to receive messages from the physical storage destination is displayed.
Limit Behavior	The response method if messages cannot be accumulated is displayed. <ul style="list-style-type: none"> - FLOW_CONTROL: Wait until messages can accumulate in the physical destination. - REMOVE_OLDEST: The oldest message is destroyed. - REMOVE_LOW_PRIORITY: Messages with the lowest priority in accordance with the expiry date are destroyed. This is not notified to the producer. - REJECT_NEWEST: New messages are rejected. An exception is only notified to the producer for persistence messages.
Consumer Flow Limit	The maximum number of messages that are delivered to one consumer is displayed.
Is Local Destination	This is an unsupported item.
Local Delivery is Preferred	This is an unsupported item.
Use Dead Message Queue	Whether the dead messages queue is used is displayed. <ul style="list-style-type: none"> - true: The dead messages queue is used. - false: The dead messages queue is not used.
XML schema validation enabled	This is an unsupported item.
XML schema URI List	This is an unsupported item.
Reload XML schema on failure	This is an unsupported item.

*1)

Displayed when -t q is specified

*2)

Displayed when -t t is specified

query svc -n service name

Display and inquire the service information.

Set either admin(for admin connection service) or jms(for jms connection service) in the service name.

The reference method using the imqcmd query svc command is explained below.

An example of the display and the service information that is displayed is shown below:

Example output:

```
imqcmd query svc -n admin

Querying the service where:

-----
Service Name
-----
admin

On the broker specified by:

-----
Host          Primary Port
-----
localhost     7676

Service Name          admin
Service State         RUNNING
Port Number           49914 (dynamic)

Current Number of Allocated Threads  2
Current Number of Connections       1

Min Number of Threads  4
Max Number of Threads  10
```

Service information that is displayed:

Item that is displayed	Content
Service Name (first service name listed)	The service name that was specified when the command is executed is displayed: - admin: admin connection service - jms: jms connection service
Host	The host name that is given to the message broker when it starts is displayed.
Primary Port	The port number that is given to the message broker when it starts is displayed.
Service Name (second service name listed)	The service name is displayed: - admin: admin connection service - jms: jms connection service
Service State	The service status is displayed: - RUNNING: Started status - PAUSED: Paused status - UNKNOWN: Unknown status - QUIESCED: Quiesced connection status

Item that is displayed	Content
	<ul style="list-style-type: none"> - UNINITIALIZED: Uninitialized status - INITIALIZED: Initialized status - STARTED: Started status - SHUTTINGDOWN: Shutting down status - STOPPED: Stopped status - DESTROYED: Destroyed status
Port Number	<p>The port number that is used by the service is displayed.</p> <p>The value in parentheses is the port assignment method:</p> <ul style="list-style-type: none"> - dynamic: The port was assigned dynamically. - static: The port was assigned statically.
Current Number of Allocated Threads	<p>The number of threads that are currently managed by the connection service is displayed.</p> <p>(*1)</p>
Current Number of Connections	<p>The number of current connections is displayed.</p>
Min Number of Threads	<p>The minimum number of threads that are managed by the connection service is displayed.</p> <p>(*1)</p>
Max Number of Threads	<p>The maximum number of threads that can be created is displayed.</p>

*1)

Threads will not exist in the thread pool immediately after message broker has started. For this reason, the number of threads that are managed by the connection service may be less than the minimum number of threads.

quiesce bkr

Stops the new acceptance of the connection by the message broker.

Note

- The acceptance of new connections for the admin connection service cannot be stopped.
- The command returns normally, even if the acceptance of new connections in the message broker has already stopped.

restart bkr

Reboot the message broker.

resume bkr

Restart the service of the message broker.

Note

The command returns normally, even if not all the message broker services have paused.

resume dst [-t physical destination type -n physical destination name]

Restart one or all physical destination.

If the physical destination to be restarted is not specified, all physical destinations are restarted.

Set either q(for Queue) or t(for Topic) in the physical destination type.

Note

The command returns normally, even if the physical storage destination that was specified has not paused.

resume svc -n service name

Restart the service.

Note

- The admin connection service cannot be restarted.
- The command returns normally, even if the service that was specified has not paused.

`shutdown bkr [-time wait_time_in_secs]`

Stop the message broker.

For `-time`, specify the number of seconds until to wait before shutdown. If this option is not specified, the shutdown will start immediately.

`unquiesce bkr`

Restart accepting a new connection by the message broker.

Note

The command returns normally, even if the acceptance of new connections in the message broker has already started.

`update bkr -o property name=value [[-o property name=value]...]`

Update the property of the message broker. For details, refer to "Message Broker Option Properties".

Note

The property of the message broker updated using this command continue to be applied even after the message broker is restarted.

`update dst -t physical destination type -n physical destination name -o property name=value [[-o property name=value]...]`

Update the property of the physical destination.

Set either `q`(for Queue) or `t`(for Topic) in the physical destination type.

For details of the property of the physical destination, refer to "Message Broker Option Properties" > "Physical Storage Destination Generation or Update Properties".

Note

The property of the physical destination updated using this command continue to be applied even after the message broker is restarted.

`update svc -n service name -o property name=value [[-o property name=value]...]`

Update the service property.

For details of the service property, refer to "Message Broker Option Properties" > "Connection Service Properties".

Note

- The service property updated using this command continue to be applied even after the message broker is restarted.
- Ensure that the connected service status is "RUNNING" before using this command to update the connected service port.

Return value

0: Ended normally

Other than 0: Ended abnormally

Notes

- Information about the user that can connect to the message broker when the command is executed must be specified. The user that is specified must belong to the admin group.
- Only a single user can be registered to the anonymous group.

10.11 imqsvcadmin

Windows32/64

Name

imqsvcadmin

Register and delete the message broker.

Synopsis

1. Execute the subcommand

```
imqsvcadmin subcommand "option "
```

2. Display Help

```
imqsvcadmin -h
```

Description

Register and delete the message broker as the Windows service.

Subcommands are as follows:

Subcommands	Description
install	Installing the message broker.
remove	Removing the message broker.
query	Displaying the message broker.

Options

Option name	Description
-h	Display a simple description of the command.

Note: If the message below is output, specify the correct option and re-execute the command:

```
Unknown option "Character string that was specified in the option"
```

Return value

0: Ended normally

Other than 0: Ended abnormally

Notes

Only a single user can be registered to the anonymous group.

Example

If Help is displayed, execute as follows:

```
>imqsvcadmin -h

Usage:
imqsvcadmin -h          Display help
imqsvcadmin query      Query information about the service
:
```

10.11.1 install Subcommand

Synopsis

imqsvcadm install [-javahome javahome]-jrehome jrehome] [-vmargs vmargs] [-args brokerArgs]

Description

Install the service that operates the message broker and then specify the startup option.

The service name of the message broker to be installed and the display name is "Interstage Message Queue Broker".

The type of startup of the registered service is also automatic so that the machine is started automatically when restarted next time.

Options

Option name	Description
-javahome	Specify the path to VM that starts the message broker. (*1) If omitted, the message broker is started using the product's default Java VM.
-jrehome	Specify the path to VM that starts the message broker. (*2) If omitted, the message broker is started using the product's default Java VM.
-vmargs	Specify the additional argument to be delivered to Java VM that executes the message broker service. (*3) If multiple parameters are delivered, specify them by enclosing by a double quotation (").
-args	Specify the additional command line argument to be delivered to the message broker service. (*4) For the imqbrokerd option, refer to the imqbrokerd command. (*5) If multiple parameters are delivered, specify them by enclosing by a double quotation (").

*1)

If the following message is output, it is assumed that the -javahome option was omitted:

Could not set JREHome to "character string that was specified in the option\jre" in registry

*2)

If the following message is output, it is assumed that the -jrehome option was omitted:

Could not set JREHome to "character string that was specified in the option" in registry

*3)

If the following message is output, it is assumed that the -vmargs option was omitted:

Could not set JVMArgs to "character string that was specified in the option" in registry

*4)

If the following message is output, it is assumed that the -args option was omitted:

Could not set ServiceArgs to "character string that was specified in the option" in registry

*5)

The following options cannot be specified. If the following options are specified, the message broker service will fail to start:

- -help
- -h
- -remove
- -reset
- -version

- -v
- -vmargs

Specify additional arguments that are passed to the Java VM that is used to execute the message broker service in the -vmargs option of the install subcommand.

Return value

0: Ended normally

Other than 0: Ended abnormally

Notes

- More than one message broker services cannot be registered.
- To set the service again, delete the service first, specify a different startup option using the -args argument and then install the service again.
- In the "Start parameter" field, the yen symbol (\) is processed as the escape character. Therefore, if it is used as the path break character, enter the yen symbol twice.

Example

Execute as follows:

```
>imqsvcadm install  
Installation of service Interstage Message Queue Broker successful.
```

10.11.2 remove Subcommand

Synopsis

imqsvcadm remove

Description

Delete the message broker service

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

Execute as follows:

```
>imqsvcadm remove  
Service Interstage Message Queue Broker successful.
```

10.11.3 query Subcommand

Synopsis

imqsvcadm query

Description

Display the startup options of the imqsvcadm command.

These include the option to choose whether the service is started manually or automatically, the service location, the Java runtime location, and the argument values that are passed to the message broker when it is started.

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

Execute as follows: An example of execution is displayed when the service is already registered.

```
>imqsvcadm query
Service Interstage Message Queue Broker is installed.
Display name: Interstage Message Queue Broker
Start Type: Automatic
Binary location: C:\Interstage\F3FMisjee\imq\bin\imqbrokersvc
```

This is an example of execution when the service is not registered.

```
>imqsvcadm query
Service Interstage Message Queue Broker is not installed.
```

10.12 imqusermgr

Name

imqusermgr

Management of information of a user who can connect to the message broker

Synopsis

1. Execute the subcommand

```
imqusermgr subcommand "option"
```

2. Display Help

```
imqusermgr -h
```

3. Display the version information

```
imqusermgr -v
```

Description

Manages the user information that can be connected to the message broker. Add/delete/information update/display list of the user can be done by combining this command with a subcommand.

Subcommands are as follows:

Subcommands	Description
add	A user/password are added to the repository.
delete	Users are deleted from the repository.
update	A user password is set. The user status is active/inactive.
list	User information is displayed.

Options

Option name	Description
-h	Display a simple explanation of the command.
-version	This displays the version information.
-v	The following information is displayed: <ul style="list-style-type: none">- Product Compatibility Version / Protocol Version Product version information- Target JMS API version Supported JMS API version- Java Runtime Version Information about the used Java Runtime

Return value

0: Ended normally

Other than 0: Ended abnormally

Notes

Only a single user can be registered to the anonymous group.

Example

If Help is displayed, execute as follows:

```
>imqusermgr -h
imqusermgr usage:

imqusermgr add -u <username> -p <password> [-g <group>] [-s]
                [-i <broker instance>]
:
```

10.12.1 add Subcommand

Synopsis

```
imqusermgr add [-u username] [-p password] [-g group] [-s] [-i broker instance]
```

Description

Add information of a user who can connect to the message broker.

Options

Option name	Description
-u	Specify the user name to be registered. If omitted, an interactive query will appear when the command is executed and the user name entry is requested.
-p	Specify the password to be assigned to the user. If omitted, an interactive query will appear when the command is executed and the user name entry is requested.

Option name	Description
-g	Specify the group that the user belongs to. Use one of the following. The default value is "user". <ul style="list-style-type: none"> - admin - user - anonymous (unsupported)
-s	The command execution results are not displayed (silent mode). Queries are also not displayed when the command is executed.
-i	Specify the message broker instance of the target operation. The default value is "imqbroker".

Return value

0: Ended normally

Other than 0: Ended abnormally

Notes

- Asterisk (*), comma (,), colon (:), return key or carriage return characters cannot be used in the user name.
- 0 byte character string can be set in the password, however, use a password of eight characters or more considering the security.
- If a space is entered in the user name or the password, double quote (") the whole user name and the password.
- There is no limit to the length of the user name and the password unless restricted by the command shell with the maximum characters that can be entered on the command line.

Example

Execute as follows:

```
>imqusermgr add -u test -p test -g user -i broker
User repository for broker instance: broker
User test successfully added.
```

10.12.2 delete Subcommand

Synopsis

```
imqusermgr delete -u username [-s] [-f] [-i broker instance]
```

Description

Delete an existing user's information.

Options

Option name	Description
-u	Specify the user name to be deleted. This is a required option.
-s	The command execution results are not displayed (silent mode). Queries are also not displayed when the command is executed.
-f	Confirmation of delete is not displayed when the command is executed.
-i	Specify the message broker instance of the target operation. The default value is "imqbroker".

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

Execute as follows. You will be asked to confirm that it is OK to delete user information that has already been created. If it is OK, enter "y".

```
>imqusermgr delete -u test -i broker
User repository for broker instance: broker
Are you sure you want to delete user test? (y/n)[n] y
User test successfully deleted.
```

10.12.3 update Subcommand

Synopsis

```
imqusermgr update -u username { -p new password | -a active state } [-s] [-f] [-i broker instance]
```

Description

Update an existing user's information. The information that can be updated is both or either of the user's password and active state.

Options

Option name	Description
-u	Specify the user name to be updated. This is a required option.
-p	Specify the new password.
-a	Specify the active state of user. If non-active state is specified, a user cannot establish a new connection. - true: to be active state - false: to be non-active state
-s	The command execution results are not displayed (silent mode). Queries are also not displayed when the command is executed.
-f	Confirmation of update is not displayed when the command is executed.
-i	Specify the message broker instance of the target operation. The default value is "imqbroker".

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

Execute as follows: You will be asked to confirm whether it is OK to update user information that has already been created. If it is OK, enter "y".

```
>imqusermgr update -u test -a false -i broker
User repository for broker instance: broker
Are you sure you want to update user test? (y/n)[n] y
User test successfully updated.
```

10.12.4 list Subcommand

Synopsis

imqusermgr list [-u username] [-i broker instance]

Description

Display information about existing users.

The items that are displayed are explained below.

Item that is displayed	Content
User Name	This is the user name that is created in the message broker.
Group	This is the name of the group that the user belongs to. <ul style="list-style-type: none">- admin- user- anonymous
Active State	Whether the user can connect to the message broker is displayed. <ul style="list-style-type: none">- true: The user can connect to the message broker- false: The user cannot connect to the message broker

Options

Option name	Description
-u	Specify the user name to be displayed. This is a required option. If omitted, "all user information that exists in the message broker instance is displayed."
-i	Specify the message broker instance of the target operation. The default value is "imqbroker".

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

If the user name to be displayed is not specified, execute as follows:

```
>imqusermgr list -i broker
User repository for broker instance: broker
-----
User Name      Group          Active State
-----
admin          admin          true
guest          anonymous      true
test           user           false
```

If the user name to be displayed is specified, execute as follows:

```
>imqusermgr list -u test -i broker
User repository for broker instance: broker
-----
```

User Name	Group	Active State
test	user	false

10.13 ijnastart

Name

ijnastart

Start the Interstage Java EE Node Agent service.

Synopsis

ijnastart

Description

Start the Interstage Java EE Node Agent service.

Return value

0: Ended normally

1: Ended abnormally

Notes

- If it takes more than 20 minutes to automatically start the IJServer clusters, the Interstage Java EE Node Agent service is stopped and the IJServer clusters are stopped forcefully.
- This command can be executed only by users with administrator authority.

Example

Execute as follows:

```
>ijnastart
ijnastart: INFO: ijna10000: Interstage Java EE Node Agent service has started.
```

10.14 ijnastat

Name

ijnastat

Display the startup status of the Interstage Java EE Node Agent service.

Synopsis

ijnastat

Description

Display the startup status of the Interstage Java EE Node Agent service.

The startup status to be displayed is one of the following.

Displayed contents	Meaning
Started	Start status
Stopped	Stop status

Displayed contents	Meaning
Starting	Start in progress
Stopping	Stop in progress
unknown	Unknown state (*1)

Return value

- 0 : Start status
- 1 : Stop status
- 2 : Start in progress
- 3 : Stop in progress
- 4 : Unknown state (*1)
- 99: Failed to obtain the start status.

*1)

An error occurred obtaining the status of the Interstage Java EE Node Agent service, so the status could not be confirmed. The Interstage Java EE Node Agent service may have hung up. Wait for a while then re-execute the command and check the status again.

Notes

This command can be executed only by users with administrator authority.

Example

Execute as follows:

```
>ijnastat
Name                               Status
-----
Interstage Java EE Node Agent      started
```

10.15 ijnastop

Name

ijnastop

Stop the Interstage Java EE Node Agent service.

Synopsis

ijnastop

Description

Stop the Interstage Java EE Node Agent service.

Issue a forceful stop of all IJServer clusters.

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- When the Interstage Java EE Node Agent service is stopped, all running IJServer clusters will be stopped forcefully. Before using this command, refer to the operation status of the IJServer clusters using the `asadmin` command `list-clusters` subcommand to make sure that it is not a problem to stop the Interstage Java EE Node Agent service.
- This command can be executed only by users with administrator authority.

Example

Execute as follows:

```
>ijnastop
ijnastop: INFO: ijna10001: Interstage Java EE Node Agent service has stopped.
```

10.16 ijwsimport

Name

`ijwsimport`

Generates resources used in the JAX-WS web service/web service client from WSDL and obtains WSDL sets.

Synopsis

`ijwsimport [options] wsdl_file`

Description

From the WSDL file the following files that are used by the web service and its clients are generated. The files are stored in the current directory, or in the directories specified with the `-s` or `-d` options.

If the `-keep` option is enabled, these source files and WSDL that is read as the input are saved to the local current directory or to the directory that was specified in the `-s` or `-d` options. The set, such as the XML Schema that was referenced, is included in the WSDL that is saved.

- Service end point interface (SEI)
- Service interface
- Other classes that are required

Class required for executing the application. Source that is required is generated according to the resources that are generated.

In the development of web service clients, client applications that follow JAX-WS are created using classes that were generated in this command.

In the development of web services based on a WSDL set that has already been created, package the resources that were generated in this command in the module together with the WSDL set and endpoint implementations according to the Web Services for Java EE specifications.

`wsdl_file`

The WSDL file path or URL is specified. Before using SSL, configure the same keystore/truststore settings as those in the method in "SSL" - "Setting a Keystore that is Used as the Application Client Container".

Options

Option name	Description
<code>-nogenerate</code>	Only the WSDL set is obtained. Resources are not generated. The <code>-keep</code> option is enabled, however class files and source files are not generated.
<code>-b path</code>	The content that was generated is customized according to the JAX-WS or JAXB external binding file that was specified. Specify the binding file path that follows the JAX-WS or JAXB specs. When multiple binding files are specified, put "-b" per file.

Option name	Description
	Example: -b fileA -b fileB
-catalog path	<p>The directory for obtaining XML that is referenced in the URL from WSDL or XML Schema is customized according to the catalog file that was specified. Specify the catalog file path that follows the OASIS XML Catalog specs.</p> <p>If the file that was specified cannot be accessed, or the directory for obtaining XML that was specified in the catalog cannot be accessed, this option is ignored.</p>
-d directory	<p>The final product generation/storage destination is changed to the directory that was specified.</p> <p>If this is not specified, it is generated to/stored in the current directory.</p>
-help	Help messages are displayed.
-httpproxy:host[:port]	When remote files are obtained using HTTP, the HTTP proxy server that was specified is used. (The default port is 8080)
-keep	<p>WSDL sets that have been read and source files that were generated are retained. Additionally, data that has been read is saved even when the WSDL is not correct. For investigations when there is trouble, specify this option to store the source resources.</p> <p>The directory is created in the storage destination according to the package name (for source files) or the normalized system identifier based on the obtain source path or URL (for WSDL sets). The name of the directory for saving WSDL sets and file names are converted as follows:</p> <ul style="list-style-type: none"> - When a WSDL that was saved locally is specified: <p>":(Windows drive character delimiter characters)" of the obtain source is converted to "@".</p> <p>Example)</p> <p>Obtain source) C:\work\StockQuote\wsdl\StockQuoteProviderService.wsdl</p> <p>Save destination) C@\work\StockQuote\wsdl\StockQuoteProviderService.wsdl</p> - When a remote WSDL is specified: <p>"http://" of the obtain source is converted to "http/", and "? (URL query delimiter characters)" is converted to ".".</p> <p>Example)</p> <p>Obtain source) http://ws.example.com/StockQuote/StockQuoteProviderService?wsdl</p> <p>Save destination) http/ws.example.com/StockQuote/StockQuoteProviderService.wsdl</p> <p>For details on the content of the WSDL set that was obtained/stored, check the following points.</p>
-p pkg	The Java resources are generated in the package name that was specified. The content that is specified for this option has a higher priority than all WSDL/ schema binding customizing for the package name or the default package name algorithms that are defined in the specs.
-s directory	<p>The WSDL set storage destination and source file generation destination are changed to the directory that was specified. If this is not specified, it is generated to/stored in the directory that was specified in the -d option.</p> <p>If the -d option was not specified, it is generated to/stored in the current directory. When this option is specified, the -keep option is also enabled.</p>
-verbose	An internal information message about the processing that was executed is output.
-version	Version information is output.
-wsdllocation URI	The javax.xml.ws.WebServiceClient annotation wsdlLocation attribute value is generated in the URL that was specified. If this option is omitted, the value is generated in the path or URL that was specified in this command. The web service client reads WSDL from the javax.xml.ws.WebServiceClient annotation wsdlLocation attribute part at the time of execution. To obtain WSDL from a path that can be accessed at the time of execution, specify an appropriate value for this option.

Option name	Description
-Xauthfile path	<p>If authentication is required using the user name and password in the WSDL file URL, authentication is performed using the authentication information file that was specified in this option.</p> <p>For the authentication information file content, the authentication information is based on the URL of the WSDL that is obtained and described according to the following format.</p> <p>http[s]://<user>:<password>@<host>:<port>/<url-path></p> <p>Example:</p> <ul style="list-style-type: none"> - URL of the WSDL that is obtained http://ws.example.com/StockQuote/StockQuoteProviderService?wsdl - Content that is described in the authentication information file (User name: user, Password: pass) http://user:pass@ws.example.com/StockQuote/StockQuoteProviderService?wsdl

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- In the final product, the application can run. For investigations when there is trouble, however, specify the -keep option to obtain and store other resources.
- The WSDL set that was obtained/stored is the content that was obtained. If other XML is referenced, the reference destination file is also obtained/stored automatically. The reference source file content is not updated, however, therefore the parts that contain "reference destination URL" are not changed in "path in which the reference destination file was obtained/stored". For this reason, the file that is obtained/stored as the reference destination file is not referenced from the reference source file.
- In the development of web services, except for development that is based on a WSDL set that has already been created there is no need to include products of this command in the application. After the module that was developed has been deployed to IJServer cluster, obtain the WSDL set from the URL to which "?wsdl" has been added to the endpoint URL, and then store/manage it as an interface definition.
- In the development of web services based on a WSDL set that has already been created, and not web applications, after the module containing the appropriate WSDL has been deployed to IJServer cluster, obtain the WSDL set from the URL to which "?wsdl" has been added to the endpoint URL, and then check that the WSDL that was specified has been made public correctly. In obtaining the above WSDL, certain required changes, such as address information, have already been completed.
- If there is a file with the same name as the generation file, it is overwritten.
- If the special "-extension" option is specified, extension functions that contain support for WSDL extension specs outside the standard specs and experimental function implementations will run. If this is specified without careful consideration, it may undermine mutual connectivity and application compatibility in future versions, or an unsupported or incorrect WSDL may end up being used so the program closes normally without an error being reported. Before specifying this option, understand the input WSDL content, consider the necessity of specifying it, and check that there are no problems in the WSDL.
- The authentication information described in the authentication information file that is used for authentication is not encrypted. To prevent authentication information leaks, set appropriate access permissions in the authentication information file.
- If multiple token types (such as NMTOKENS, IDREFS, and ENTITIES) are used as the data type for WSDL, the WARNING message shown below might be output when ObjectFactory.java is compiled (XXXX/XXXX depends on the package that is generated). In this case, there is no need to take action according to the warning.

Note: The XXXX/XXXX/ObjectFactory.java operation has not been checked or is not safe.

Note: For details, specify the -Xlint:unchecked option and then recompile.

Example

An example of the execution when resources are generated from WSDL that was saved locally is shown below.

```
>ijwsimport -keep C:\work\StockQuote\wsdl\StockQuoteProviderService.wsdl
parsing WSDL...

generating code...

compiling code...
```

An example of the execution when a remote WSDL set is obtained is shown below.

```
>ijwsimport -nogenerate -s dev\wsdl http://ws.example.com/StockQuote/StockQuoteProviderService?wsdl
parsing WSDL...
```

10.17 jspc

Name

jspc

Compiles the JSP files that are stored in the specified directory.

Synopsis

```
jspc -webapp dir [-help] [-v] [-d dir] [-compile] [-classpath path] [-smap] [-compilerTargetVM {1.5|5|1.6|6}] [-ignoreJspFragmentErrors]
[-validate] [-l] [-s] [-p <class_package>] [-disablePooling]
```

If the option is omitted or is specified incorrectly, an error will occur when the command is executed. For details on how to use this command, run it with the `-help` option.

Description

This command compiles the JSP files stored in the specified directory.

To compile in Java Development Kit 6, select Java Development Kit 6 at the time of the Interstage Java EE installation.

Use the `jspc` command for JSP that runs on Interstage Java EE.

Options

Option name	Description
-webapp	Specify the web application root path. All JSP files in the specified path (including subdirectories) are compiled. JSP will still be compiled even if the specified path is not the web application root path - in this case, however, the class files generated will not be able to run on the IJServer cluster.
-help	This command help is displayed in the following format: Usage: jspc <options> [--] <jsp files> where jsp files is Explanation of each item
-v	Outputs detail information at the time of the JSP compile.
-d	Specify the directory for the JSP compile result. If omitted, the JSP compile result is output to the directory in which the command was executed.

Option name	Description
-compile	Creates the class files from the JSP compile result. This is a mandatory option.
-classpath	If another class has been called in JSP, specify the full path of the directory or JAR file that stores that class.
-smap	Performs the debug of JSP applications by linking to a development environment such as "Interstage Studio".
-compilerTargetVM	Specify the compatibility of the class files to be generated. The following versions can be specified: 1.5 or 5 (default), 1.6 or 6
-ignoreJspFragmentErrors	Ignores JSP fragment compile errors. Target files are those with the .jsp or .jspx extension.
-validate	Verifies tld files and web.xml using the schema or DTD.
-l	Displays the JSP file name for which the JSP compile failed. (-v can also be used as an alternate)
-s	Displays the JSP file name for which the JSP compile succeeded. (-v can also be used as an alternate)
-p	Specify the class package to be generated in the JSP compile. The default is org.apache.jsp.
-disablePooling	Indicates that custom tag pooling is not required.

*1)

If the compile result exists in the specified directory and the JSP file timestamp is older than the compile result timestamp, then compilation is not performed. Either delete the compile result, or output the compile result to another directory.

Return value

0: Normal end

1: An error occurred.

Example

Execute as follows:

```
> jspc -webapp c:\work\SampleServlet -v -compile -d c:\work\compiledir.
```

10.18 ijsmartsetup

Name

Ijsmartsetup

Builds the user application operating environment

Synopsis

ijsmartsetup

Description

This command prompts the user for resource (IIServer cluster, JDBC resource etc.) information that is required to run user applications. Using this information, it builds the user application operating environment by creating the resources and deploying the user application.

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

Execute as follows:

```
> ijsmartsetup
```

Input items

When this command is executed, the system will prompt the user to enter each item shown below. Enter each item according to the prompt.

Note that, if you type **q** (or **Q**) at the prompt and then press **Enter**, the command will end. Accordingly, **q** and **Q** cannot be specified for any of the values.

Additionally, spaces before or after the value will be ignored.

Item	Description	Value range	Remarks
Admin User name	Interstage Java EE DAS service admin user ID	String. Spaces cannot be specified.	There is only a prompt if the file or ldap realm was used, and the asadmin login information has not been saved in the file.
Admin User password	Interstage Java EE DAS service admin user ID password	String. Spaces cannot be specified.	There is only a prompt if the file or ldap realm was used, and the asadmin login information has not been saved in the file.
Name of the operating environment of the application to be created (IJSERVER cluster)	IJSERVER cluster name that is created to deploy applications	Between 1 and 22 alphanumeric characters, and strings that contain "_". Double-byte characters, and "_" as the first or last character, cannot be used. The name of an existing IJSERVER cluster cannot be specified, regardless of any differences between uppercase and lowercase. An IJSERVER cluster of the following name cannot be created: - domain - ijna - default - server - resources - DOS device name	

Item	Description	Value range	Remarks
.war file	File path of the deployed application	Specify the absolute path of the file path for the war file. Specify a maximum of 255 characters. Alphanumeric characters, and the following characters can be specified: - _ . ;	
Database	Select the database to be used from the application, and the operation form	Select one of the following using the number: 1: Symfoware local JDBC driver type2 2: Symfoware RDB2_TCP linkage (remote) JDBC driver type2 3: Oracle Thin JDBC driver type4 4: Database not used	
JNDI name of JDBC resource	Name of the JDBC resource that is created This is the JNDI name for the application to obtain the data source.	Alphanumerics, spaces, or the following characters: ! () - . / ; < > @ \ ^ _ ` { } ~ Any of the characters above, except the space, can be specified as the first character. Specify a string of between 1 and 249 characters.	There is a prompt if a database is used.
Symfoware Server client installation directory	Symfoware Server client installation directory path	Specify the absolute path. Specify a maximum of 219 characters.	Windows32/64 There is a prompt if Symfoware was selected and the Symfoware Server client was not installed in "C:\SFWCLNT".
Directory of the ojdbc6.jar file	Directory that stores the ojdbc6.jar file	Specify the absolute path. Specify a maximum of 244 characters.	There is a prompt if Oracle was selected.
Directory of the orai18n.jar file	Directory that stores the orai18n.jar file	Specify the absolute path. Specify a maximum of 243 characters.	There is a prompt if Oracle was selected.
Database server name or IP address	Connection target database server name or IP address	String. Spaces and the following characters cannot be specified: " [] \	There is a prompt if "Symfoware RDB2_TCP linkage (remote) JDBC driver type2" or Oracle was selected.
Number of database server	Number of the database server port to connect to	Numeric (1-65535)	There is a prompt if "Symfoware RDB2_TCP linkage (remote) JDBC driver

Item	Description	Value range	Remarks
			type2" or Oracle was selected.
RDB system name	Name of the RDB system to connect to Specify the existing RDB system name.	String. Spaces and the following characters cannot be specified: " [] \ However, to use operations that do not have the RDB system name appended, enter a space.	There is a prompt if "Symfoware local JDBC driver type2" was selected.
Data resource name (database name)	Data resource name (database name) to connect to Specify the existing data resource name (database name).	String. Spaces and the following characters cannot be specified: " [] \ 	There is a prompt if Symfoware was selected.
Name of the Oracle service	Name of Oracle service to be used Specify the existing service name.	String. Spaces and the following characters cannot be specified: " [] \ 	There is a prompt if Oracle was selected.
User used to connect to the Database	The user used to connect to the Database Specify the existing user.	String. Spaces and the following characters cannot be specified: " [] \ 	There is a prompt if a database is used.
User password used for the database connection	The user password used for the database connection Specify the existing user password.	String. Spaces and the following characters cannot be specified: " [] \ 	There is a prompt if a database is used.

Resources that are created

When this command is executed, the following resources are created in Java EE.

Type	Name
IJServer cluster	Name of the operating environment (IJServer cluster) that was specified
Configuration	<IJServer cluster name>-config
Server instance	<IJServer cluster name>_ins<number>
Application	Value without the extension part from the .war file name that was specified
JDBC resource	JDBC resource JNDI name that was specified
Connection Pool	<JDBC resource JNDI name>Pool If the alias already exists, a trailing digit will be added so that the same alias is not used.
Password alias	<JDBC resource JNDI name>pool_pwd The name is all lowercase. If the alias already exists, a trailing digit will be added so that the same alias is not used.

The resources that were created can be configured or deleted using the Interstage Java EE Admin Console or the asadmin command. For details, refer to the following manuals:

- "Operations Using Interstage Java EE Admin Console" in the "Java EE Application Operation" chapter
- ["10.1 asadmin"](#)

Notes

- This command can only be executed by a user with administrator privileges.
- When this command is executed, shell piping or redirecting cannot be used.
- This functionality cannot be used in applications which require settings for items not shown in "Input items". Configure these settings and perform operations using the Interstage Java EE Admin Console or the asadmin command, for example.
- This command must not be executed multiple times all at once.
- This command must not be executed when the commands shown below are executed. Additionally, the commands shown below must not be executed when this command is executed.
 - asadmin
 - ijnastart
 - ijnastop
 - ijdasstop
 - ijdasstart
- When this command is executed, operations must not be performed using the Java EE Admin Console.
- When this command is executed, the Interstage Java EE DAS and Interstage Java EE Node Agent services must be running.
- To check the access to the database, set the class path to the JDBC driver in the Interstage Java EE DAS service in this command if necessary, and then restart the Java EE operating environment.
- If this command was stopped by force using [Ctrl]+[C], for example, resources that were created may still remain. Refer to ["Resources that are created"](#), and then delete the resources using the Interstage Java EE Admin Console, for example.
- If this command has not ended normally, the resources that were created will not be deleted. The command for deleting the resources is displayed after the error message is output. Refer to this, and then delete the resources.
- This command may not be able to access the application from the URL in the example shown. To start the browser on a server other than the server on which Java EE is running, use the host name or IP address of the server on which Java EE was executed. For operations that use a web server connection, check the following web server settings, and then access from the correct URL:
 - SSL usage
 - Host name/IP address
 - Port number
- In this command, UNC paths are not supported. To specify shared network resources in the items shown below, map the network drive before using them.
 - .war file
 - Symfoware Server client installation directory
 - Directory that stores the ojdbc6.jar file
 - Directory that stores the orai18n.jar file

10.19 Definition Items that can be Executed by the asadmin Command

This section explains the definition items that can be processed with the asadmin command get/set/list subcommands.

Note

- The property value is referable (get subcommand) or configurable (set subcommand) as follows:

```
asadmin get resources.jdbc-resource.JNDI name.property. property name to be referenced
asadmin set resources.jdbc-resource.JNDI name.property.property name to be set=value
```

If the property value is not set, an error will occur when referenced.

For details on the referencing/setting of the property, refer to the description below.

- get subcommand
 - list subcommand
 - set subcommand
- In the property descriptions, the following symbols are used:

Symbol	Meaning
<code>\${clusterName}</code>	Specify the IJServer cluster name.
<code>\${instanceName}</code>	Specify the server instance name.
<code>\${clusterName_instanceName}</code>	Specify the IJServer cluster name or the server instance name.
<code>\${clusterName_instanceName_configName}</code>	Specify the IJServer cluster name, the server instance name or config name.

10.19.1 Definition Items of the Application

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Applications	applications <code>\${clusterName_instanceName}.applications</code>	No	No	Yes

10.19.1.1 Definition Items of the applications.lifecycle-module

For details on the description of each item and referable/configurable properties, refer to "Lifecycle Module Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Lifecycle module	applications.lifecycle-module. <code>{AppName}</code> <code>\${clusterName_instanceName}.applications.lifecycle-module.<code>{AppName}</code></code>	No	No	Yes
Name	applications.lifecycle-module. <code>{AppName}.name</code> <code>\${clusterName_instanceName}.applications.lifecycle-module.<code>{AppName}.name</code></code>	Yes	No	No
Class name	applications.lifecycle-module. <code>{AppName}.class-name</code> <code>\${clusterName_instanceName}.applications.lifecycle-module.<code>{AppName}.class-name</code></code>	Yes	Yes	No
Classpath	applications.lifecycle-module. <code>{AppName}.classpath</code> <code>\${clusterName_instanceName}.applications.lifecycle-module.<code>{AppName}.classpath</code></code>	Yes	Yes	No

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Load order	applications.lifecycle-module.\${AppName}.load-order \${clusterName_instanceName}.applications.lifecycle-module.\${AppName}.load-order	Yes	Yes	No
Status	applications.lifecycle-module.\${AppName}.enabled \${clusterName_instanceName}.applications.lifecycle-module.\${AppName}.enabled	Yes	Yes	No
Description	applications.lifecycle-module.\${AppName}.description \${clusterName_instanceName}.applications.lifecycle-module.\${AppName}.description	Yes	Yes	No
Additional properties	applications.lifecycle-module.\${AppName}.property.\${PropertyName} \${clusterName_instanceName}.applications.lifecycle-module.\${AppName}.property.\${PropertyName}	Yes	Yes	No

10.19.1.2 Definition Items of the applications.j2ee-application

For details on the description of each item and referable/configurable properties, refer to "Java EE Application Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Java EE application	applications.j2ee-application.\${AppName} \${clusterName_instanceName}.applications.j2ee-application.\${AppName}	No	No	Yes
Name	applications.j2ee-application.\${AppName}.name \${clusterName_instanceName}.applications.j2ee-application.\${AppName}.name	Yes	No	No
Location	applications.j2ee-application.\${AppName}.location \${clusterName_instanceName}.applications.j2ee-application.\${AppName}.location	Yes	No	No
Status	applications.j2ee-application.\${AppName}.enabled \${clusterName_instanceName}.applications.j2ee-application.\${AppName}.enabled	Yes	No	No
Library	applications.j2ee-application.\${AppName}.libraries \${clusterName_instanceName}.applications.j2ee-application.\${AppName}.libraries	Yes	Yes	No
Description	applications.j2ee-application.\${AppName}.description \${clusterName_instanceName}.applications.j2ee-application.\${AppName}.description	Yes	Yes	No
Web service	applications.j2ee-application.\${AppName}.web-service-endpoint.\${EndpointName} \${clusterName_instanceName}.applications.j2ee-application.\${AppName}.web-service-endpoint.\${EndpointName}	No	No	Yes (*1)
Name	applications.j2ee-application.\${AppName}.web-service-endpoint.\${EndpointName}.name	Yes (*1)	No	No

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
	<code>\${clusterName_instanceName}.applications.j2ee-application. \${AppName}.web-service-endpoint.\${EndpointName}.name</code>			

*1)

Before the definition item name is obtained using the get/list subcommand, the configure-webservice-management command must be executed once after the application is deployed.

10.19.1.3 Definition Items of the applications.ejb-module

For details on the description of each item and referable/configurable properties, refer to "EJB Module Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
EJB module	<code>applications.ejb-module.\${AppName}</code> <code>\${clusterName_instanceName}.applications.ejb-module. {AppName}</code>	No	No	Yes
Name	<code>applications.ejb-module.\${AppName}.name</code> <code>\${clusterName_instanceName}.applications.ejb-module. {AppName}.name</code>	Yes	No	No
Location	<code>applications.ejb-module.\${AppName}.location</code> <code>\${clusterName_instanceName}.applications.ejb-module. {AppName}.location</code>	Yes	No	No
Status	<code>applications.ejb-module.\${AppName}.enabled</code> <code>\${clusterName_instanceName}.applications.ejb-module. {AppName}.enabled</code>	Yes	Yes	No
Library	<code>applications.ejb-module.\${AppName}.libraries</code> <code>\${clusterName_instanceName}.applications.ejb-module. {AppName}.libraries</code>	Yes	Yes	No
Description	<code>applications.ejb-module.\${AppName}.description</code> <code>\${clusterName_instanceName}.applications.ejb-module. {AppName}.description</code>	Yes	Yes	No
Web service	<code>applications.ejb-module.\${AppName}.web-service-endpoint. {EndpointName}</code> <code>\${clusterName_instanceName}.applications.ejb-module. {AppName}.web-service-endpoint.\${EndpointName}</code>	No	No	Yes (*1)
Name	<code>applications.ejb-module.\${AppName}.web-service-endpoint. {EndpointName}.name</code> <code>\${clusterName_instanceName}.applications.ejb-module. {AppName}.web-service-endpoint.\${EndpointName}.name</code>	Yes (*1)	No	No

*1)

Immediately after the deployment process is executed, the configure-webservice-management command must be executed once before the definition item name is obtained using the get/list subcommand.

10.19.1.4 Definition Items of the applications.web-module

For details on the description of each item and referable/configurable properties, refer to "Web Application Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Web application	applications.web-module.\${AppName} \${clusterName_instanceName}.applications.web-module.\${AppName}	No	No	Yes
Name	applications.web-module.\${AppName}.name \${clusterName_instanceName}.applications.web-module.\${AppName}.name	Yes	No	No
Context root	applications.web-module.\${AppName}.context-root \${clusterName_instanceName}.applications.web-module.\${AppName}.context-root	Yes	Yes	No
Location	applications.web-module.\${AppName}.location \${clusterName_instanceName}.applications.web-module.\${AppName}.location	Yes	No	No
Status	applications.web-module.\${AppName}.enabled \${clusterName_instanceName}.applications.web-module.\${AppName}.enabled	Yes	Yes	No
Library	applications.web-module.\${AppName}.libraries \${clusterName_instanceName}.applications.web-module.\${AppName}.libraries	Yes	Yes	No
Description	applications.web-module.\${AppName}.description \${clusterName_instanceName}.applications.web-module.\${AppName}.description	Yes	Yes	No
Web service	applications.web-module.\${AppName}.web-service-endpoint.\${EndpointName} \${clusterName_instanceName}.applications.web-module.\${AppName}.web-service-endpoint.\${EndpointName}	No	No	Yes (*1)
Name	applications.web-module.\${AppName}.web-service-endpoint.\${EndpointName}.name \${clusterName_instanceName}.applications.web-module.\${AppName}.web-service-endpoint.\${EndpointName}.name	Yes (*1)	No	No

*1)

Immediately after the deployment process is executed, the configure-webservice-management command must be executed once before the definition item name is obtained using the get/list subcommand.

10.19.1.5 Definition Items of the applications.connector-module

For details on the description of each item and referable/configurable properties, refer to "Connector Module Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Connector module	applications.connector-module.\${AppName}	No	No	Yes

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
	<code>\${clusterName_instanceName}.applications.connector-module.\${AppName}</code>			
Name	<code>applications.connector-module.\${AppName}.name</code> <code>\${clusterName_instanceName}.applications.connector-module.\${AppName}.name</code>	Yes	No	No
Location	<code>applications.connector-module.\${AppName}.location</code> <code>\${clusterName_instanceName}.applications.connector-module.\${AppName}.location</code>	Yes	No	No
Status	<code>applications.connector-module.\${AppName}.enabled</code> <code>\${clusterName_instanceName}.applications.connector-module.\${AppName}.enabled</code>	Yes	Yes	No
Description	<code>applications.connector-module.\${AppName}.description</code> <code>\${clusterName_instanceName}.applications.connector-module.\${AppName}.description</code>	Yes	Yes	No

10.19.1.6 Definition Items of the applications.appclient-module

For details on the description of each item and referable/configurable properties, refer to "Application Client Module Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Application client module	<code>applications.appclient-module.\${AppName}</code> <code>\${clusterName_instanceName}.applications.appclient-module.\${AppName}</code>	No	No	Yes
Name	<code>applications.appclient-module.\${AppName}.name</code> <code>\${clusterName_instanceName}.applications.appclient-module.\${AppName}.name</code>	Yes	No	No
Location	<code>applications.appclient-module.\${AppName}.location</code> <code>\${clusterName_instanceName}.applications.appclient-module.\${AppName}.location</code>	Yes	No	No
Description	<code>applications.appclient-module.\${AppName}.description</code> <code>\${clusterName_instanceName}.applications.appclient-module.\${AppName}.description</code>	Yes	Yes	No

10.19.2 Definition Items of the Resources

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Resources	Resources <code>\${clusterName_instanceName}.resources</code>	No	No	Yes

10.19.2.1 Definition Items of the resources.custom-resource

For details on the description of each item and referable/configurable properties, refer to "Custom Resource Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Custom resource	resources.custom-resource.\${jndi-name} \${clusterName_instanceName}.resources.custom-resource.\${jndi-name}	No	No	Yes
JNDI name	resources.custom-resource.\${jndi-name}.jndi-name \${clusterName_instanceName}.resources.custom-resource.\${jndi-name}.jndi-name	Yes	No	No
Resource type	resources.custom-resource.\${jndi-name}.res-type \${clusterName_instanceName}.resources.custom-resource.\${jndi-name}.res-type	Yes	Yes	No
Factory class	resources.custom-resource.\${jndi-name}.factory-class \${clusterName_instanceName}.resources.custom-resource.\${jndi-name}.factory-class	Yes	Yes	No
Status	resources.custom-resource.\${jndi-name}.enabled \${clusterName_instanceName}.resources.custom-resource.\${jndi-name}.enabled	Yes	Yes	No
Description	resources.custom-resource.\${jndi-name}.description \${clusterName_instanceName}.resources.custom-resource.\${jndi-name}.description	Yes	Yes	No
Additional properties	resources.custom-resource.\${jndi-name}.property.\${PropertyName} \${clusterName_instanceName}.resources.custom-resource.\${jndi-name}.property.\${PropertyName}	Yes	Yes	No

10.19.2.2 Definition Items of the resources.external-jndi-resource

For details on the description of each item and referable/configurable properties, refer to "External Resource Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
External resource	resources.external-jndi-resource.\${jndi-name} \${clusterName_instanceName}.resources.external-jndi-resource.\${jndi-name}	No	No	Yes
JNDI name	resources.external-jndi-resource.\${jndi-name}.jndi-name \${clusterName_instanceName}.resources.external-jndi-resource.\${jndi-name}.jndi-name	Yes	No	No
JNDI lookup	resources.external-jndi-resource.\${jndi-name}.jndi-lookup-name \${clusterName_instanceName}.resources.external-jndi-resource.\${jndi-name}.jndi-lookup-name	Yes	Yes	No
Resource type	resources.external-jndi-resource.\${jndi-name}.res-type \${clusterName_instanceName}.resources.external-jndi-resource.\${jndi-name}.res-type	Yes	Yes	No
Factory class	resources.external-jndi-resource.\${jndi-name}.factory-class \${clusterName_instanceName}.resources.external-jndi-resource.\${jndi-name}.factory-class	Yes	Yes	No

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Status	resources.external-jndi-resource.\${jndi-name}.enabled \${clusterName_instanceName}.resources.external-jndi-resource.\${jndi-name}.enabled	Yes	Yes	No
Description	resources.external-jndi-resource.\${jndi-name}.description \${clusterName_instanceName}.resources.external-jndi-resource.\${jndi-name}.description	Yes	Yes	No
Additional properties	resources.external-jndi-resource.\${jndi-name}.property.\${PropertyName} \${clusterName_instanceName}.resources.external-jndi-resource.\${jndi-name}.property.\${PropertyName}	Yes	Yes	No

10.19.2.3 Definition Items of the resources.jdbc-resource

For details on the explanation of each item and the referable/configurable properties, refer to "JDBC Resource Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
JDBC resource	resources.jdbc-resource.\${jndi-name} \${clusterName_instanceName}.resources.jdbc-resource.\${jndi-name}	No	No	Yes
JNDI name	resources.jdbc-resource.\${jndi-name}.jndi-name \${clusterName_instanceName}.resources.jdbc-resource.\${jndi-name}.jndi-name	Yes	No	No
Connection pool name	resources.jdbc-resource.\${jndi-name}.pool-name \${clusterName_instanceName}.resources.jdbc-resource.\${jndi-name}.pool-name	Yes	Yes	No
Status	resources.jdbc-resource.\${jndi-name}.enabled \${clusterName_instanceName}.resources.jdbc-resource.\${jndi-name}.enabled	Yes	Yes	No
Description	resources.jdbc-resource.\${jndi-name}.description \${clusterName_instanceName}.resources.jdbc-resource.\${jndi-name}.description	Yes	Yes	No

10.19.2.4 Definition Items of the resources.mail-resource

For details on the description of each item and referable/configurable properties, refer to "JavaMail Session Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
JavaMail session	resources.mail-resource.\${jndi-name} \${clusterName_instanceName}.resources.mail-resource.\${jndi-name}	No	No	Yes
JNDI name	resources.mail-resource.\${jndi-name}.jndi-name	Yes	No	No

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
	<code>\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.jndi-name</code>			
Store protocol	<code>resources.mail-resource.\${jndi-name}.store-protocol</code> <code>\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.store-protocol</code>	Yes	Yes	No
Store protocol class	<code>resources.mail-resource.\${jndi-name}.store-protocol-class</code> <code>\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.store-protocol-class</code>	Yes	Yes	No
Transport protocol	<code>resources.mail-resource.\${jndi-name}.transport-protocol</code> <code>\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.transport-protocol</code>	Yes	Yes	No
Transport protocol class	<code>resources.mail-resource.\${jndi-name}.transport-protocol-class</code> <code>\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.transport-protocol-class</code>	Yes	Yes	No
Mail host	<code>resources.mail-resource.\${jndi-name}.host</code> <code>\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.host</code>	Yes	Yes	No
Default user	<code>resources.mail-resource.\${jndi-name}.user</code> <code>\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.user</code>	Yes	Yes	No
Default return address	<code>resources.mail-resource.\${jndi-name}.from</code> <code>\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.from</code>	Yes	Yes	No
Debug	<code>resources.mail-resource.\${jndi-name}.debug</code> <code>\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.debug</code>	Yes	Yes	No
Status	<code>resources.mail-resource.\${jndi-name}.enabled</code> <code>\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.enabled</code>	Yes	Yes	No
Description	<code>resources.mail-resource.\${jndi-name}.description</code> <code>\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.description</code>	Yes	Yes	No
Additional properties	<code>resources.mail-resource.\${jndi-name}.property.\${PropertyName}</code> <code>\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.property.\${PropertyName}</code>	Yes	Yes	No

10.19.2.5 Definition Items of the resources.admin-object-resource

For details on the description of each item and referable/configurable properties, refer to "Managed Object Resource Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Admin object resource	<code>resources.admin-object-resource.\${jndi-name}</code>	No	No	Yes

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
	<code>\${clusterName_instanceName}.resources.admin-object-resource.\${jndi-name}</code>			
JNDI name	<code>resources.admin-object-resource.\${jndi-name}.jndi-name</code> <code>\${clusterName_instanceName}.resources.admin-object-resource.\${jndi-name}.jndi-name</code>	Yes	No	No
Resource type	<code>resources.admin-object-resource.\${jndi-name}.res-type</code> <code>\${clusterName_instanceName}.resources.admin-object-resource.\${jndi-name}.res-type</code>	Yes	Yes	No
Resource adapter name	<code>resources.admin-object-resource.\${jndi-name}.res-adapter</code> <code>\${clusterName_instanceName}.resources.admin-object-resource.\${jndi-name}.res-adapter</code>	Yes	Yes	No
Status	<code>resources.admin-object-resource.\${jndi-name}.enabled</code> <code>\${clusterName_instanceName}.resources.admin-object-resource.\${jndi-name}.enabled</code>	Yes	Yes	No
Description	<code>resources.admin-object-resource.\${jndi-name}.description</code> <code>\${clusterName_instanceName}.resources.admin-object-resource.\${jndi-name}.description</code>	Yes	Yes	No
Additional properties	<code>resources.admin-object-resource.\${jndi-name}.property.\${PropertyName}</code> <code>\${clusterName_instanceName}.resources.admin-object-resource.\${jndi-name}.property.\${PropertyName}</code>	Yes	Yes	No

10.19.2.6 Definition Items of the resources.connector-resource

For details on the description of each item and referable/configurable properties, refer to "Connector Resource Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Connector resource	<code>resources.connector-resource.\${jndi-name}</code> <code>\${clusterName_instanceName}.resources.connector-resource.\${jndi-name}</code>	No	No	Yes
JNDI name	<code>resources.connector-resource.\${jndi-name}.jndi-name</code> <code>\${clusterName_instanceName}.resources.connector-resource.\${jndi-name}.jndi-name</code>	Yes	No	No
Connection pool name	<code>resources.connector-resource.\${jndi-name}.pool-name</code> <code>\${clusterName_instanceName}.resources.connector-resource.\${jndi-name}.pool-name</code>	Yes	Yes	No
Status	<code>resources.connector-resource.\${jndi-name}.enabled</code> <code>\${clusterName_instanceName}.resources.connector-resource.\${jndi-name}.enabled</code>	Yes	Yes	No
Description	<code>resources.connector-resource.\${jndi-name}.description</code> <code>\${clusterName_instanceName}.resources.connector-resource.\${jndi-name}.description</code>	Yes	Yes	No

10.19.2.7 Definition Items of the resources.resource-adapter-config

For details on the description of each item and referable/configurable properties, refer to "Resource Adapter Definition Information Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Resource adapter definition information	resources.resource-adapter-config.\${jndi-name} \${clusterName_instanceName}.resources.resource-adapter-config.\${jndi-name}	No	No	Yes
Thread pool ID	resources.resource-adapter-config.\${jndi-name}.thread-pool-ids \${clusterName_instanceName}.resources.resource-adapter-config.\${jndi-name}.thread-pool-ids	Yes	Yes	No
Resource adapter name	resources.resource-adapter-config.\${jndi-name}.resource-adapter-name \${clusterName_instanceName}.resources.resource-adapter-config.\${jndi-name}.resource-adapter-name	Yes	No	No

10.19.2.8 Definition Items of the resources.jdbc-connection-pool

For details on the description of each item and referable/configurable properties, refer to "JDBC Connection Pool Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Connection pool	resources.jdbc-connection-pool.\${pool-name}	No	No	Yes
Connection pool name	resources.jdbc-connection-pool.\${pool-name}.name	Yes	No	No
Data resource class name	resources.jdbc-connection-pool.\${pool-name}.datasource-classname	Yes	Yes	No
Resource type	resources.jdbc-connection-pool.\${pool-name}.res-type	Yes	Yes	No
Initial and minimum pool size	resources.jdbc-connection-pool.\${pool-name}.steady-pool-size	Yes	Yes	No
Maximum pool size	resources.jdbc-connection-pool.\${pool-name}.max-pool-size	Yes	Yes	No
Maximum wait time	resources.jdbc-connection-pool.\${pool-name}.max-wait-time-in-millis	Yes	Yes	No
Pool resize quantity	resources.jdbc-connection-pool.\${pool-name}.pool-resize-quantity	Yes	Yes	No
Idle timeout	resources.jdbc-connection-pool.\${pool-name}.idle-timeout-in-seconds	Yes	Yes	No
Transaction isolation	resources.jdbc-connection-pool.\${pool-name}.transaction-isolation-level	Yes	Yes	No
Block level	resources.jdbc-connection-pool.\${pool-name}.is-isolation-level-guaranteed	Yes	Yes	No
Connection validation	resources.jdbc-connection-pool.\${pool-name}.is-connection-validation-required	Yes	Yes	No
Validation method	resources.jdbc-connection-pool.\${pool-name}.connection-validation-method	Yes	Yes	No
Table name	resources.jdbc-connection-pool.\${pool-name}.validation-table-name	Yes	Yes	No
Fail all connections	resources.jdbc-connection-pool.\${pool-name}.fail-all-connections	Yes	Yes	No

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Non-transaction connection	resources.jdbc-connection-pool.\${pool-name}.non-transactional-connections	Yes	Yes	No
Only join connection after the transaction has started	resources.jdbc-connection-pool.\${pool-name}.allow-non-component-callers	Yes	Yes	No
Statement timeout	resources.jdbc-connection-pool.\${pool-name}.statement-timeout-in-seconds	Yes	Yes	No
Pooling	resources.jdbc-connection-pool.\${pool-name}.pooling	Yes	Yes	No
Leak timeout	resources.jdbc-connection-pool.\${pool-name}.connection-leak-timeout-in-seconds	Yes	Yes	No
Leak reclaim	resources.jdbc-connection-pool.\${pool-name}.connection-leak-reclaim	Yes	Yes	No
Creation retry count	resources.jdbc-connection-pool.\${pool-name}.connection-creation-retry-attempts	Yes	Yes	No
Retry interval	resources.jdbc-connection-pool.\${pool-name}.connection-creation-retry-interval-in-seconds	Yes	Yes	No
Output of access information to the audit log	resources.jdbc-connection-pool.\${pool-name}.symfoware-access-log	Yes	Yes	No
Description	resources.jdbc-connection-pool.\${pool-name}.description	Yes	Yes	No
Additional properties	resources.jdbc-connection-pool.\${pool-name}.property.\${PropertyName}	Yes	Yes	No

10.19.2.9 Definition Items of the resources.connector-connection-pool

For details on the description of each item and referable/configurable properties, refer to "Connector Connection Pool Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Connector connection pool	resources.connector-connection-pool.\${jndi-name}	No	No	Yes
Connection pool name	resources.connector-connection-pool.\${jndi-name}.name	Yes	No	No
Resource adapter name	resources.connector-connection-pool.\${jndi-name}.resource-adapter-name	Yes	Yes	No
Connection definition name	resources.connector-connection-pool.\${jndi-name}.connection-definition-name	Yes	Yes	No
Initial and minimum pool size	resources.connector-connection-pool.\${jndi-name}.steady-pool-size	Yes	Yes	No
Maximum pool size	resources.connector-connection-pool.\${jndi-name}.max-pool-size	Yes	Yes	No
Maximum wait time	resources.connector-connection-pool.\${jndi-name}.max-wait-time-in-millis	Yes	Yes	No
Pool resize quantity	resources.connector-connection-pool.\${jndi-name}.pool-resize-quantity	Yes	Yes	No
Idle timeout	resources.connector-connection-pool.\${jndi-name}.idle-timeout-in-seconds	Yes	Yes	No

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Fail all connections	resources.connector-connection-pool.{jndi-name}.fail-all-connections	Yes	Yes	No
Transaction support	resources.connector-connection-pool.{jndi-name}.transaction-support	Yes	Yes	No
Connection validation	resources.connector-connection-pool.{jndi-name}.is-connection-validation-required	Yes	Yes	No
Description	resources.connector-connection-pool.{jndi-name}.description	Yes	Yes	No
Security map	resources.connector-connection-pool.{jndi-name}.security-map.{MapName}	No	No	Yes
Security map name	resources.connector-connection-pool.{jndi-name}.security-map.{MapName}.name	Yes	No	No
Principal	resources.connector-connection-pool.{jndi-name}.security-map.{MapName}.principal	Yes	Yes	No
User group	resources.connector-connection-pool.{jndi-name}.security-map.{MapName}.user-group	Yes	Yes	No
Backend Principal	resources.connector-connection-pool.{jndi-name}.security-map.{MapName}.backend-principal	No	No	Yes
User name	resources.connector-connection-pool.{jndi-name}.security-map.{MapName}.backend-principal.user-name	Yes	Yes	No
Password	resources.connector-connection-pool.{jndi-name}.security-map.{MapName}.backend-principal.password	Yes	Yes	No
Additional properties	resources.connector-connection-pool.{jndi-name}.property.{PropertyName}	Yes	Yes	No

10.19.3 Definition Items of the configs

10.19.3.1 Definition Items of the configs.config.name

For details on the description of each item and referable/configurable properties, refer to "Setting Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Setting name	#{configName}.name	Yes	No	No

10.19.3.2 Definition Items of the configs.config.http-service

For details on the description of each item and referable/configurable properties, refer to "[7.8.3 HTTP Service Definition Items](#)" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
HTTP service	#{clusterName_instanceName_configName}.http-service	No	No	Yes
HTTP Access log	#{clusterName_instanceName_configName}.http-service.access-log	No	No	Yes
Format	#{clusterName_instanceName_configName}.http-service.access-log.format	Yes	Yes	No

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Rotation type	<code>\${clusterName_instanceName_configName}.http-service.access-log.log-rotation-type</code>	Yes	Yes	No
Log size	<code>\${clusterName_instanceName_configName}.http-service.access-log.log-rotation-logsize</code>	Yes	Yes	No
Log collection time	<code>\${clusterName_instanceName_configName}.http-service.access-log.log-rotation-time</code>	Yes	Yes	No
Number of generations	<code>\${clusterName_instanceName_configName}.http-service.access-log.log-backup-size</code>	Yes	Yes	No
HTTP listener	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}</code>	No	No	Yes
HTTP listener name	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.id</code>	Yes	No	No
Network address	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.address</code>	Yes	Yes	No
Listener port	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.port</code>	Yes	Yes	No
Block	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.blocking-enabled</code>	Yes	Yes	No
Acceptor threads	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.acceptor-threads</code>	Yes	Yes	No
Security	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.security-enabled</code>	Yes	Yes	No
X-Powered-By header field	<code>\${ijserverName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.xpowered-by</code>	Yes	Yes	No
Listener	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.enabled</code>	Yes	Yes	No
SSL	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.ssl</code>	No	No	Yes
Certificate nickname	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.ssl.cert-nickname</code>	Yes	Yes	No
SSL2	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.ssl.ssl2-enabled</code>	Yes	Yes	No
SSL2 encryption format	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.ssl.ssl2-ciphers</code>	Yes	Yes	No
SSL3	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.ssl.ssl3-enabled</code>	Yes	Yes	No
SSL3 encryption format	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.ssl.ssl3-tls-ciphers</code>	Yes	Yes	No
TLS	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.ssl.tls-enabled</code>	Yes	Yes	No
HTTP listener additional property	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.property.\${PropertyName}</code>	Yes	Yes	No
Maximum POST request size	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.property.maxPostSize</code>	Yes	Yes	No

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Operation mode for access to the web container	<code>\${clusterName_instanceName_configName}.http-service.http-listener.\${http-listener-id}.property.requestCheck</code>	Yes	Yes	No
Virtual server	<code>\${clusterName_instanceName_configName}.http-service.virtual-server.\${server-id}</code>	No	No	Yes
ID	<code>\${clusterName_instanceName_configName}.http-service.virtual-server.\${server-id}.id</code>	Yes	No	No
Virtual server additional property	<code>\${clusterName_instanceName_configName}.http-service.virtual-server.\${server-id}.property.\${PropertyName}</code>	Yes	Yes	No
Client address for accepting requests	<code>\${clusterName_instanceName_configName}.http-service.virtual-server.\${server-id}.property.allowRemoteAddress</code>	Yes	Yes	No
Request processing	<code>\${clusterName_instanceName_configName}.http-service.request-processing</code>	No	No	Yes
Thread count	<code>\${clusterName_instanceName_configName}.http-service.request-processing.thread-count</code>	Yes	Yes	No
Initial thread count	<code>\${clusterName_instanceName_configName}.http-service.request-processing.initial-thread-count</code>	Yes	Yes	No
Thread increment	<code>\${clusterName_instanceName_configName}.http-service.request-processing.thread-increment</code>	Yes	Yes	No
Keep alive timeout	<code>\${clusterName_instanceName_configName}.http-service.keep-alive.timeout-in-seconds</code>	Yes	Yes	No
Connection pool	<code>\${clusterName_instanceName_configName}.http-service.connection-pool</code>	No	No	Yes
Queue size	<code>\${clusterName_instanceName_configName}.http-service.connection-pool.queue-size-in-bytes</code>	Yes	Yes	No
Maximum pending count	<code>\${clusterName_instanceName_configName}.http-service.connection-pool.max-pending-count</code>	Yes	Yes	No
Receive buffer size	<code>\${clusterName_instanceName_configName}.http-service.connection-pool.receive-buffer-size-in-bytes</code>	Yes	Yes	No
HTTP protocol	<code>\${clusterName_instanceName_configName}.http-service.http-protocol</code>	No	No	Yes
Version	<code>\${clusterName_instanceName_configName}.http-service.http-protocol.version</code>	Yes	Yes	No
SSL	<code>\${clusterName_instanceName_configName}.http-service.http-protocol.ssl-enabled</code>	Yes	Yes	No
HTTP service additional property	<code>\${clusterName_instanceName_configName}.http-service.property.\${PropertyName}</code>	Yes	Yes	No
Number of requests which can be processed in one connection	<code>\${ijserverName_instanceName_configName}.http-service.property.maxKeepAliveRequests</code>	Yes	Yes	-
Access log	<code>\${ijserverName_instanceName_configName}.http-service.property.accessLoggingEnabled</code>	Yes	Yes	No
Trace log	<code>\${ijserverName_instanceName_configName}.http-service.property.ISJEELogHttpTraceEnable</code>	Yes	Yes	No
Log size of trace log	<code>\${ijserverName_instanceName_configName}.http-service.property.ISJEELogHttpTraceRotationsize</code>	Yes	Yes	No

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Number of trace log generations	<code>\${ijserverName_instanceName_configName}.http-service.property.ISJEELogHttpTraceRotationcount</code>	Yes	Yes	No
TRACE method behavior	<code>\${ijserverName_instanceName_configName}.http-service.property.traceEnabled</code>	Yes	Yes	No

10.19.3.3 Definition Items of the configs.config.iiop-service

For details on the description of each item and referable/configurable properties, refer to "IIOP Service Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
IIOP service definitions				
IIOP service	<code>\${clusterName_instanceName_configName}.iiop-service</code>	No	No	Yes
IIOP client authentication	<code>\${clusterName_instanceName_configName}.iiop-service.client-authentication-required</code>	Yes	Yes	No
IIOP service ORB definitions				
ORB	<code>\${clusterName_instanceName_configName}.iiop-service.orb</code>	No	No	Yes
Thread pool ID	<code>\${clusterName_instanceName_configName}.iiop-service.orb.use-thread-pool-ids</code>	Yes	Yes	No
Maximum message fragment size	<code>\${clusterName_instanceName_configName}.iiop-service.orb.message-fragment-size</code>	Yes	Yes	No
Maximum connections	<code>\${clusterName_instanceName_configName}.iiop-service.orb.max-connections</code>	Yes	Yes	No
ORB additional property	<code>\${clusterName_instanceName_configName}.iiop-service.orb.property.\${PropertyName}</code>	Yes	Yes	No
IIOP listener definitions				
IIOP listener	<code>\${clusterName_instanceName_configName}.iiop-service.iiop-listener.\${iiop-listener-id}</code>	No	No	Yes
IIOP listener Name	<code>\${clusterName_instanceName_configName}.iiop-service.iiop-listener.\${iiop-listener-id}.id</code>	Yes	No	No
Network address	<code>\${clusterName_instanceName_configName}.iiop-service.iiop-listener.\${iiop-listener-id}.address</code>	Yes	Yes	No
Listener port	<code>\${clusterName_instanceName_configName}.iiop-service.iiop-listener.\${iiop-listener-id}.port</code>	Yes	Yes	No
Listener	<code>\${clusterName_instanceName_configName}.iiop-service.iiop-listener.\${iiop-listener-id}.enabled</code>	Yes	Yes	No
IIOP listener additional property	<code>\${clusterName_instanceName_configName}.iiop-service.iiop-listener.\${iiop-listener-id}.property.\${PropertyName}</code>	Yes	Yes	No

10.19.3.4 Definition Items of the configs.config.admin-service

For details on the description of each item and referable/configurable properties, refer to "Managed Service Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Admin service	<code>\${clusterName_instanceName_configName}.admin-service</code>	No	No	Yes
JMX connector	<code>\${clusterName_instanceName_configName}.admin-service.jmx-connector.\${name}</code>	No	No	Yes
JMX connector name	<code>\${clusterName_instanceName_configName}.admin-service.jmx-connector.\${name}.name</code>	Yes	No	No
Protocol	<code>\${clusterName_instanceName_configName}.admin-service.jmx-connector.\${name}.protocol</code>	Yes	No	No
Address	<code>\${clusterName_instanceName_configName}.admin-service.jmx-connector.\${name}.address</code>	Yes	Yes	No
Port	<code>\${clusterName_instanceName_configName}.admin-service.jmx-connector.\${name}.port</code>	Yes	Yes	No
Security realm name	<code>\${clusterName_instanceName_configName}.admin-service.jmx-connector.\${name}.auth-realm-name</code>	Yes	No	No
Auto reload	<code>\${clusterName_instanceName_configName}.admin-service.das-config.dynamic-reload-enabled</code>	Yes	No	No
Auto reload polling interval	<code>\${clusterName_instanceName_configName}.admin-service.das-config.dynamic-reload-poll-interval-in-seconds</code>	Yes	No	No
Session Timeout	<code>\${clusterName_instanceName_configName}.admin-service.das-config.admin-session-timeout-in-minutes</code>	Yes	No	No
JMX connector additional property	<code>\${clusterName_instanceName_configName}.admin-service.jmx-connector.\${name}.property.\${PropertyName}</code>	Yes	Yes	No
Admin service additional property	<code>\${clusterName_instanceName_configName}.admin-service.property.\${PropertyName}</code>	Yes	Yes	No

10.19.3.5 Definition Items of the configs.config.connector-service

For details on the description of each item and referable/configurable properties, refer to "Connector Service Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Connector service	<code>\${clusterName_instanceName_configName}.connector-service</code>	No	No	Yes
Shutdown timeout	<code>\${clusterName_instanceName_configName}.connector-service.shutdown-timeout-in-seconds</code>	Yes	Yes	No

10.19.3.6 Definition Items of the configs.config.web-container

For details on the description of each item and referable/configurable properties, refer to "Web Container Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Web container	<code>\${clusterName_instanceName_configName}.web-container</code>	No	No	Yes
Session definition	<code>\${clusterName_instanceName_configName}.session-config</code>	No	No	Yes
Session manager	<code>\${clusterName_instanceName_configName}.session-config.session-manager</code>	No	No	Yes
Manager property list	<code>\${clusterName_instanceName_configName}.session-config.session-manager.manager-properties</code>	No	No	Yes

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Manager property additional property	<code>\${clusterName_instanceName_configName}.session-config.session-manager.manager-properties.property.\${PropertyName}</code>	Yes	Yes	No
Session property list	<code>\${clusterName_instanceName_configName}.session-config.session-properties</code>	No	No	Yes
Session property additional property	<code>\${clusterName_instanceName_configName}.session-config.session-properties.property.\${PropertyName}</code>	Yes	Yes	No
Additional Properties	<code>\${clusterName_instanceName_configName}.web-container.property.\${PropertyName}</code>	Yes	Yes	No

10.19.3.7 Definition Items of the configs.config.ejb-container

For details on the description of each item and referable/configurable properties, refer to "EJB Container Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
EJB container	<code>\${clusterName_instanceName_configName}.ejb-container</code>	No	No	Yes
Initial and minimum pool size	<code>\${clusterName_instanceName_configName}.ejb-container.steady-pool-size</code>	Yes	Yes	No
Pool resize quantity	<code>\${clusterName_instanceName_configName}.ejb-container.pool-resize-quantity</code>	Yes	Yes	No
Maximum pool size	<code>\${clusterName_instanceName_configName}.ejb-container.max-pool-size</code>	Yes	Yes	No
Cache resize quantity	<code>\${clusterName_instanceName_configName}.ejb-container.cache-resize-quantity</code>	Yes	Yes	No
Maximum cache size	<code>\${clusterName_instanceName_configName}.ejb-container.max-cache-size</code>	Yes	Yes	No
Pool idle timeout	<code>\${clusterName_instanceName_configName}.ejb-container.pool-idle-timeout-in-seconds</code>	Yes	Yes	No
Cache idle timeout	<code>\${clusterName_instanceName_configName}.ejb-container.cache-idle-timeout-in-seconds</code>	Yes	Yes	No
Removal timeout	<code>\${clusterName_instanceName_configName}.ejb-container.removal-timeout-in-seconds</code>	Yes	Yes	No
Selection contents removal policy	<code>\${clusterName_instanceName_configName}.ejb-container.victim-selection-policy</code>	Yes	Yes	No
Session store location	<code>\${clusterName_instanceName_configName}.ejb-container.session-store</code>	Yes	Yes	No
EJB timer service	<code>\${clusterName_instanceName_configName}.ejb-container.ejb-timer-service</code>	No	No	Yes
Minimum delivery interval	<code>\${clusterName_instanceName_configName}.ejb-container.ejb-timer-service.minimum-delivery-interval-in-millis</code>	Yes	Yes	No
Maximum redeliveries	<code>\${clusterName_instanceName_configName}.ejb-container.ejb-timer-service.max-redeliveries</code>	Yes	Yes	No
Timer datasource	<code>\${clusterName_instanceName_configName}.ejb-container.ejb-timer-service.timer-datasource</code>	Yes	Yes	No
Redelivery interval	<code>\${clusterName_instanceName_configName}.ejb-container.ejb-timer-service.redelivery-interval-internal-in-millis</code>	Yes	Yes	No

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
EJB timer service additional property	<code>\${clusterName_instanceName_configName}.ejb-container.ejb-timer-service.property.\${PropertyName}</code>	Yes	Yes	No
Additional properties	<code>\${clusterName_instanceName_configName}.ejb-container.property.\${PropertyName}</code>	Yes	Yes	No

10.19.3.8 Definition Items of configs.config.ejb-container-availability

For an explanation about each item, and details on which properties can be referenced/set, refer to "7.8.8 EJB Container Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
SFSB persistence type	<code>\${clusterName_instanceName_configName}.ejb-container-availability.sfsb-persistence-type</code>	Yes	Yes	No

This item cannot be used in the Interstage Java EE DAS service.

10.19.3.9 Definition Items of the configs.config.mdb-container

For details on the description of each item and referable/configurable properties, refer to "Message-driven Bean Default Pool Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Message-driven Bean default pool settings	<code>\${clusterName_instanceName_configName}.mdb-container</code>	No	No	Yes
Initial and minimum pool size	<code>\${clusterName_instanceName_configName}.mdb-container.steady-pool-size</code>	Yes	Yes	No
Pool resize quantity	<code>\${clusterName_instanceName_configName}.mdb-container.pool-resize-quantity</code>	Yes	Yes	No
Maximum pool size	<code>\${clusterName_instanceName_configName}.mdb-container.max-pool-size</code>	Yes	Yes	No
Idle timeout	<code>\${clusterName_instanceName_configName}.mdb-container.idle-timeout-in-seconds</code>	Yes	Yes	No
Additional properties	<code>\${clusterName_instanceName_configName}.mdb-container.property.\${PropertyName}</code>	Yes	Yes	No

10.19.3.10 Definition Items of the configs.config.jms-service

For details on the description of each item and referable/configurable properties, refer to "JMS Service Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
JMS service	<code>\${clusterName_instanceName_configName}.jms-service</code>	No	No	Yes
JMS host	<code>\${clusterName_instanceName_configName}.jms-service.jms-host.default_JMS_host</code>	No	No	Yes
Name	<code>\${clusterName_instanceName_configName}.jms-service.jms-host.default_JMS_host.name</code>	Yes	No	No

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Host	<code>\${clusterName_instanceName_configName}.jms-service.jms-host.default_JMS_host.host</code>	Yes	Yes	No
Port	<code>\${clusterName_instanceName_configName}.jms-service.jms-host.default_JMS_host.port</code>	Yes	Yes	No
Admin user ID	<code>\${clusterName_instanceName_configName}.jms-service.jms-host.default_JMS_host.admin-user-name</code>	Yes	Yes	No
Admin user password	<code>\${clusterName_instanceName_configName}.jms-service.jms-host.default_JMS_host.admin-password</code>	Yes	Yes	No

10.19.3.11 Definition Items of the configs.config.log-service

For details on the description of each item and referable/configurable properties, refer to "Operating Environment-related Definition Items", "Logger Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Logger settings	<code>\${clusterName_instanceName_configName}.log-service</code>	No	No	Yes
Log output directory	<code>\${clusterName_instanceName_configName}.log-service.log-directory</code>	Yes	Yes	No
Rotation type	<code>\${clusterName_instanceName_configName}.log-service.log-rotation-type</code>	Yes	Yes	No
Log size	<code>\${clusterName_instanceName_configName}.log-service.log-rotation-logsize</code>	Yes	Yes	No
Log collection time	<code>\${clusterName_instanceName_configName}.log-service.log-rotation-time</code>	Yes	Yes	No
Number of generations	<code>\${clusterName_instanceName_configName}.log-service.log-backup-size</code>	Yes	Yes	No

10.19.3.12 Definition Items of the configs.config.security-service

For details on the description of each item and referable/configurable properties, refer to "[7.8.12 Security Definition Items](#)" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Security	<code>\${clusterName_instanceName_configName}.security-service</code>	No	No	Yes
Default realm	<code>\${clusterName_instanceName_configName}.security-service.default-realm</code>	Yes	Yes	No
JACC	<code>\${clusterName_instanceName_configName}.security-service.jacc</code>	Yes	Yes	No
Realm	<code>\${clusterName_instanceName_configName}.security-service.auth-realm.\${name}</code>	No	No	Yes
Name	<code>\${clusterName_instanceName_configName}.security-service.auth-realm.\${name}.name</code>	Yes	No	No
Class name	<code>\${clusterName_instanceName_configName}.security-service.auth-realm.\${name}.classname</code>	Yes	Yes	No
Realm additional property	<code>\${clusterName_instanceName_configName}.security-service.auth-realm.\${name}.property.\${PropertyName}</code>	Yes	Yes	No

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Additional properties	<code>\${clusterName_instanceName_configName}.security-service.property.\${PropertyName}</code>	Yes	Yes	No

10.19.3.13 Definition Items of the configs.config.transaction-service

For details on the description of each item and referable/configurable properties, refer to "Transaction Service Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Transaction service	<code>\${clusterName_instanceName_configName}.transaction-service</code>	No	No	Yes
Restart	<code>\${clusterName_instanceName_configName}.transaction-service.automatic-recovery</code>	Yes	Yes	No
Transaction timeout	<code>\${clusterName_instanceName_configName}.transaction-service.timeout-in-seconds</code>	Yes	Yes	No
Transaction log location	<code>\${clusterName_instanceName_configName}.transaction-service.tx-log-dir</code>	Yes	Yes	No
Special result decision	<code>\${clusterName_instanceName_configName}.transaction-service.heuristic-decision</code>	Yes	Yes	No
Retry timeout	<code>\${clusterName_instanceName_configName}.transaction-service.retry-timeout-in-seconds</code>	Yes	Yes	No
Key point interval	<code>\${clusterName_instanceName_configName}.transaction-service.keypoint-interval</code>	Yes	Yes	No
Additional properties	<code>\${clusterName_instanceName_configName}.transaction-service.property.\${PropertyName}</code>	Yes	Yes	No

10.19.3.14 Definition Items of the configs.config.monitoring-service

For details on the description of each item and referable/configurable properties, refer to "Monitoring Service Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Monitoring service	<code>\${clusterName_instanceName_configName}.monitoring-service</code>	No	No	Yes
Monitor Logging	<code>\${clusterName_instanceName_configName}.monitoring-service.logging-enabled</code>	Yes	Yes	No
Collection Interval	<code>\${clusterName_instanceName_configName}.monitoring-service.logging-interval</code>	Yes	Yes	No
Module monitoring level	<code>\${clusterName_instanceName_configName}.monitoring-service.module-monitoring-levels</code>	No	No	Yes
Thread pool	<code>\${clusterName_instanceName_configName}.monitoring-service.module-monitoring-levels.thread-pool</code>	Yes	Yes	No
ORB (IIOP connections)	<code>\${clusterName_instanceName_configName}.monitoring-service.module-monitoring-levels.orb</code>	Yes	Yes	No
EJB container	<code>\${clusterName_instanceName_configName}.monitoring-service.module-monitoring-levels.ejb-container</code>	Yes	Yes	No
Web container	<code>\${clusterName_instanceName_configName}.monitoring-service.module-monitoring-levels.web-container</code>	Yes	Yes	No

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Transaction service	<code>\${clusterName_instanceName_configName}.monitoring-service.module-monitoring-levels.transaction-service</code>	Yes	Yes	No
HTTP service	<code>\${clusterName_instanceName_configName}.monitoring-service.module-monitoring-levels.http-service</code>	Yes	Yes	No
JDBC connection pool	<code>\${clusterName_instanceName_configName}.monitoring-service.module-monitoring-levels.jdbc-connection-pool</code>	Yes	Yes	No
Connector connection pool	<code>\${clusterName_instanceName_configName}.monitoring-service.module-monitoring-levels.connector-connection-pool</code>	Yes	Yes	No
Connector service	<code>\${clusterName_instanceName_configName}.monitoring-service.module-monitoring-levels.connector-service</code>	Yes	Yes	No
JMS service	<code>\${clusterName_instanceName_configName}.monitoring-service.module-monitoring-levels.jms-service</code>	Yes	Yes	No
JVM	<code>\${clusterName_instanceName_configName}.monitoring-service.module-monitoring-levels.jvm</code>	Yes	Yes	No
Module monitoring level additional property	<code>\${clusterName_instanceName_configName}.monitoring-service.module-monitoring-levels.property.\${PropertyName}</code>	Yes	Yes	No
Additional properties	<code>\${clusterName_instanceName_configName}.monitoring-service.property.\${PropertyName}</code>	Yes	Yes	No

10.19.3.15 Definition Items of the configs.config.java-config

For details on the description of each item and referable/configurable properties, refer to "Java VM Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
JVM settings	<code>\${clusterName_instanceName_configName}.java-config</code>	No	No	Yes
Debug	<code>\${clusterName_instanceName_configName}.java-config.debug-enabled</code>	Yes	Yes	No
debug option	<code>\${clusterName_instanceName_configName}.java-config.debug-options</code>	Yes	Yes	No
Javac option	<code>\${clusterName_instanceName_configName}.java-config.javac-options</code>	Yes	Yes	No
Class path suffix	<code>\${clusterName_instanceName_configName}.java-config.classpath-suffix</code>	Yes	Yes	No
Native library path suffix	<code>\${clusterName_instanceName_configName}.java-config.native-library-path-suffix</code>	Yes	Yes	No
JVM option	<code>\${clusterName_instanceName_configName}.java-config.jvm-options</code>	Yes	Yes	No
Additional properties	<code>\${clusterName_instanceName_configName}.java-config.property.\${PropertyName}</code>	Yes	Yes	No
Profiler configuration	<code>\${clusterName_instanceName_configName}.java-config.profiler</code>	No	No	Yes
Profiler name	<code>\${clusterName_instanceName_configName}.java-config.profiler.name</code>	Yes	No	No
Class path	<code>\${clusterName_instanceName_configName}.java-config.profiler.classpath</code>	Yes	Yes	No

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Native library path	<code>\${clusterName_instanceName_configName}.java-config.profiler.native-library-path</code>	Yes	Yes	No
Profiler configuration status	<code>\${clusterName_instanceName_configName}.java-config.profiler.enabled</code>	Yes	Yes	No
Profiler configuration JVM options	<code>\${clusterName_instanceName_configName}.java-config.profiler.jvm-options</code>	Yes	Yes	No
Profiler configuration additional properties	<code>\${clusterName_instanceName_configName}.java-config.profiler.property.\${PropertyName}</code>	Yes	Yes	No

10.19.3.16 Definition Items of the configs.config.thread-pools

For details on the description of each item and referable/configurable properties, refer to "Thread Pool Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Thread pool	<code>\${clusterName_instanceName_configName}.thread-pools</code>	No	No	Yes
Thread pool	<code>\${clusterName_instanceName_configName}.thread-pools.thread-pool.\${thread-pool-id}</code>	No	No	Yes
Thread pool ID	<code>\${clusterName_instanceName_configName}.thread-pools.thread-pool.\${thread-pool-id}.thread-pool-id</code>	Yes	No	No
Minimum thread pool size	<code>\${clusterName_instanceName_configName}.thread-pools.thread-pool.\${thread-pool-id}.min-thread-pool-size</code>	Yes	Yes	No
Maximum pool size	<code>\${clusterName_instanceName_configName}.thread-pools.thread-pool.\${thread-pool-id}.max-thread-pool-size</code>	Yes	Yes	No
Idle timeout	<code>\${clusterName_instanceName_configName}.thread-pools.thread-pool.\${thread-pool-id}.idle-thread-timeout-in-seconds</code>	Yes	Yes	No

10.19.3.17 Definition Items of the configs.config.group-management-service

For details on the description of each item and referable/configurable properties, refer to "Group Management Service Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Group management service	<code>\${clusterName_instanceName_configName}.group-management-service</code>	No	No	Yes
Protocol maximum tries	<code>\${clusterName_instanceName_configName}.group-management-service.fd-protocol-max-tries</code>	Yes	Yes	No
Protocol timeout	<code>\${clusterName_instanceName_configName}.group-management-service.fd-protocol-timeout-in-millis</code>	Yes	Yes	No
Verified timeout	<code>\${clusterName_instanceName_configName}.group-management-service.vs-protocol-timeout-in-millis</code>	Yes	Yes	No
Maximum interval	<code>\${clusterName_instanceName_configName}.group-management-service.merge-protocol-max-interval-in-millis</code>	Yes	Yes	No
Minimum interval	<code>\${clusterName_instanceName_configName}.group-management-service.merge-protocol-min-interval-in-millis</code>	Yes	Yes	No

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Ping timeout	<code>\${clusterName_instanceName_configName}.group-management-service.ping-protocol-timeout-in-millis</code>	Yes	Yes	No
Additional properties	<code>\${clusterName_instanceName_configName}.group-management-service.property.\${PropertyName}</code>	Yes	Yes	No

10.19.3.18 Definition Items of the configs.config.system-property

For details on the description of each item and referable/configurable properties, refer to "Operating Environment-related Definition Items", "System Property Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
System properties	<code>\${clusterName_instanceName_configName}.system-property.\${property-name}</code>	Yes	Yes	No

10.19.3.19 Definition Items of the configs.config.ijservice-control

For details on the description of each item and referable/configurable properties, refer to "Process Control Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Environment variable <i>(*1) (*2)</i>	<code>\${clusterName_instanceName_configName}.ijservice-control.environment-variable</code>	Yes	Yes	No
Java heap/Permanent space is insufficient <i>(*1)</i>	<code>\${clusterName_instanceName_configName}.ijservice-control.restart-process-at-out-of-memory</code>	Yes	Yes	No
Application Maximum processing time <i>(*1)</i>	<code>\${clusterName_instanceName_configName}.ijservice-control.maximum-processing-time</code>	Yes	Yes	No
Behavior when the maximum application processing time is exceeded <i>(*1)</i>	<code>\${clusterName_instanceName_configName}.ijservice-control.terminate-process-for-timeout</code>	Yes	Yes	No
IJServ cluster startup wait time <i>(*1)</i>	<code>\${clusterName_instanceName_configName}.ijservice-control.maximum-startup-time</code>	Yes	Yes	No
IJServ cluster stop wait time <i>(*1)</i>	<code>\${clusterName_instanceName_configName}.ijservice-control.maximum-stop-time</code>	Yes	Yes	No
Current directory	<code>\${clusterName_instanceName_configName}.ijservice-control.current-directory</code>	No	No	Yes
Current directory path <i>(*1)</i>	<code>\${clusterName_instanceName_configName}.ijservice-control.current-directory.path</code>	Yes	Yes	No
Number of generations of the current directory to be saved <i>(*1)</i>	<code>\${clusterName_instanceName_configName}.ijservice-control.current-directory.number-of-generations</code>	Yes	Yes	No

**1)*

This item cannot be used in the Interstage Java EE DAS service.

*2)

If more than one environment variables are specified using the asadmin command set subcommand, use a comma as separation character.

10.19.3.20 Definition Items of configs.config.application-ref

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Applications associated with the target	<code>\${clusterName_instanceName_configName}.application-ref</code>	No	No	Yes

10.19.3.21 Definition Items of configs.config.availability-service

For an explanation about each item, and details on which properties can be referenced/set, refer to "Availability Service Definition Items" in the "List of Definition Items" chapter of the Java EE Operator's Guide. Note that these can only be used with session recovery.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Availability Service	<code>\${clusterName_instanceName_configName}.availability-service.availability-enabled</code>	Yes	Yes	No
Availability for the Web Container	<code>\${clusterName_instanceName_configName}.web-container-availability.availability-enabled</code>	Yes	Yes	No

10.19.4 Definition Items of the Servers

For details on the description of each item and referable/configurable properties, refer to "Server Instance Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Server instance name	<code>\${instanceName}.name</code>	Yes	No	No
Application reference	<code>\${instanceName}.application-ref.\${application-name}</code>	No	No	Yes
Application reference availability	<code>\${instanceName}.application-ref.\${application-name}.enabled</code>	Yes	Yes	No
Application name	<code>\${instanceName}.application-ref.\${application-name}.ref</code>	Yes	No	No
Resource reference	<code>\${instanceName}.resource-ref.\${jndi-name}</code>	No	No	Yes
Enable or disable the resource reference	<code>\${instanceName}.resource-ref.\${jndi-name}.enabled</code>	Yes	Yes	No
Resource name	<code>\${instanceName}.resource-ref.\${jndi-name}.ref</code>	Yes	No	No
System properties	<code>\${instanceName}.system-property.\${PropertyName}</code>	Yes	Yes	No

10.19.5 Definition Items of the Clusters

For details on the description of each item and referable/configurable properties, refer to "Cluster Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
IIServer cluster name	<code>\${clusterName}.name</code>	Yes	No	No
Application reference	<code>\${clusterName}.application-ref.\${application-name}</code>	No	No	Yes

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Application reference availability	<code>\${clusterName}.application-ref.\${application-name}.enabled</code>	Yes	Yes	No
Application name	<code>\${clusterName}.application-ref.\${application-name}.ref</code>	Yes	No	No
heartbeat port	<code>\${clusterName}.heartbeat-port</code>	Yes	Yes	No
heartbeat address	<code>\${clusterName}.heartbeat-address</code>	Yes	Yes	No
Heartbeat	<code>\${clusterName}.heartbeat-enabled</code>	Yes	Yes	No
System property	<code>\${clusterName}.system-property.\${PropertyName}</code>	Yes	Yes	No
IIOP load balancing	<code>\${clusterName}.iiop-load-balance</code>	No	No	Yes
Load balancer method	<code>\${clusterName}.iiop-load-balance.method</code>	Yes	Yes	No
Object reference failover settings	<code>\${clusterName}.iiop-load-balance.or-failover</code>	Yes	Yes	No
Request dispatch information log	<code>\${clusterName}.iiop-load-balance.ejb-request-dispatch-log</code>	Yes	Yes	No
Dispatch target information log	<code>\${clusterName}.iiop-load-balance.ejb-dispatch-target-log</code>	Yes	Yes	No
Dispatch target	<code>\${clusterName}.iiop-load-balance.ejb-dispatch-target.\${targetClusterName}</code>	No	No	Yes
Dispatch target name	<code>\${clusterName}.iiop-load-balance.ejb-dispatch-target.\${targetClusterName}.name</code>	Yes	No	No
Server instance which is disabled as the EJB Dispatcher dispatch target	<code>\${clusterName}.iiop-load-balance.ejb-dispatch-target.\${targetClusterName}.disabled-target-instance</code>	No	No	Yes
Name of server instance which is disabled as the EJB Dispatcher dispatch target	<code>\${clusterName}.iiop-load-balance.ejb-dispatch-target.\${targetClusterName}.disabled-target-instance.instance-name</code>	No	No	Yes
EJB Dispatcher server instance which is disabled as the EJB Dispatcher dispatch target	<code>\${clusterName}.iiop-load-balance.ejb-dispatch-target.\${targetCluster}.disabled-target-instance.\${disabledTargetInstance}.dispatcher-instance</code>	Yes	Yes (*1)	No
JNDI Service	<code>\${clusterName}.jndi-service</code>	No	No	Yes
External naming service URL	<code>\${clusterName}.jndi-service.naming-service-url</code>	Yes	Yes	No
Object reference cache	<code>\${clusterName}.jndi-service.remote-or-cache</code>	Yes	Yes	No
Resource reference	<code>\${clusterName}.resource-ref.\${jndi-name}</code>	No	No	Yes
Resource reference availability	<code>\${clusterName}.resource-ref.\${jndi-name}.enabled</code>	Yes	Yes	No
Resource name	<code>\${clusterName}.resource-ref.\${jndi-name}.ref</code>	Yes	No	No

*1)

If this value is changed in the `asadmin` command `set` subcommand, it will be necessary to restart the EJB Dispatcher server instance in order to enable the changes. For this reason, to change a EJB Dispatcher server instance which is disabled as a dispatch target, use the `asadmin` command `enable-ejb-dispatch-target` and `disable-ejb-dispatch-target` subcommands.

This item cannot be used in the Interstage Java EE DAS service.

10.19.6 Definition Items of the node-agents

For details on the description of each item and referable/configurable properties, refer to "Interstage Java EE Node Agent Service Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Node Agent	node-agents	No	No	Yes
Node Agent	node-agent.\${NodeAgentName}	No	No	Yes
Node Agent name	node-agent.\${NodeAgentName}.name	Yes	No	No
System-jmx-connector name	node-agent.\${NodeAgentName}.system-jmx-connector-name	Yes	No	No
IIServer cluster automatic startup	node-agent.\${NodeAgentName}.start-servers-in-startup	Yes	Yes	No
Node Agent additional properties	node-agent.\${NodeAgentName}.property.\${PropertyName}	Yes	Yes	No
JMX connector	node-agent.\${NodeAgentName}.jmx-connector	No	No	Yes
JMX connector name	node-agent.\${NodeAgentName}.jmx-connector.name	Yes	No	No
JMX connector Protocol	node-agent.\${NodeAgentName}.jmx-connector.protocol	Yes	No	No
JMX connector Address	node-agent.\${NodeAgentName}.jmx-connector.address	Yes	Yes	No
JMX connector Port	node-agent.\${NodeAgentName}.jmx-connector.port	Yes	Yes	No
JMX connector realm name	node-agent.\${NodeAgentName}.jmx-connector.auth-realm-name	Yes	No	No
JMX connector additional properties	node-agent.\${NodeAgentName}.jmx-connector.property.\${PropertyName}	Yes	Yes	No
Realm name	node-agent.\${NodeAgentName}.auth-realm.name	Yes	No	No
Realm class name	node-agent.\${NodeAgentName}.auth-realm.classname	Yes	Yes	No
Realm additional property	node-agent.\${NodeAgentName}.auth-realm.property.\${PropertyName}	Yes	Yes	No

10.19.6.1 Definition Items of the node-agents.node-agent.log-service

For details on the description of each item and referable/configurable properties, refer to "Interstage Java EE Node Agent Service Definition Items", "Logger Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Logger settings	domain.node-agent.ijna.log-service	No	No	Yes
Log output directory	domain.node-agent.ijna.log-service.log-directory	Yes	Yes	No
Rotation type	domain.node-agent.ijna.log-service.log-rotation-type	Yes	Yes	No
Log size	domain.node-agent.ijna.log-service.log-rotation-logsize	Yes	Yes	No
Log collection time	domain.node-agent.ijna.log-service.log-rotation-time	Yes	Yes	No
Number of generations	domain.node-agent.ijna.log-service.log-backup-size	Yes	Yes	No

10.19.7 Definition Items of the system-property

For details on the description of each item and referable/configurable properties, refer to "System Property Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
System properties	domain.system-property.\${PropertyName}	Yes	Yes	No

10.19.8 Definition Items of the Domain

For details on the description of each item and referable/configurable properties, refer to "Domain Definition Items" in the "List of Definition Items" chapter.

Item name	Definition item name specified by the get/set/list subcommand	get	set	list
Locale	domain.locale	Yes	Yes	No
Java version	domain.java-version	Yes	No	No

Chapter 11 Interstage Operation Management Service Commands

This chapter describes the Interstage Operation Management service commands.

Supported commands

Command	Outline	Standard-J Edition	Enterprise Edition
isomstart	Starts Interstage Operation Management service.	OK	OK
isomstat	Display the status of Interstage Operation Management service	OK	OK
isomstop	Stops Interstage Operation Management service	OK	OK

OK: Supported

NO: Not supported

Location of commands

Platform	Command	Directory
Windows32/64	All commands	C:\Interstage\bin
Solaris32/64	All commands	/opt/FJSVisjee/bin
Linux32/64		

11.1 isomstart

Name

isomstart

Starts Interstage Operation Management service.

Synopsis

```
isomstart
```

Description

The isomstart command starts the Interstage Operation Management service.

Return Value

0: Normal end

1: An error occurred.

Note

Windows32/64

- Execute this command with administrator authority.

Solaris32/64 Linux32/64

- Immediately after installation, this command can only be executed by a user with administrator permissions.

- The environment must be created specially for this command to be executed by general users. For details on creating this type of environment, refer to "Setting up the Environment so that it can be Run by General Users".

Example

```
> isomstart
isomstart: INFO: isom10000: Interstage Operation Management service has started.
```

11.2 isomstat

Name

isomstat

Interstage Operation Management service status display.

Synopsis

```
isomstat
```

Description

The isomstat command displays the status of Interstage Operation Management service.

The information displayed by the command is described in table below.

Title	Description
Started	Service has been started
Stopped	Service has been stopped
Starting	Service is being started
Stopping	Service is being stopped

Return Value

- 0: Service has been started
- 1: Service has been stopped
- 2: Service is being started
- 3: Service is being stopped
- 99: Failed to obtain the Started status

Note

Windows32/64

- Execute this command with administrator authority.

Solaris32/64 Linux32/64

- Immediately after installation, this command can only be executed by a user with administrator permissions.
- The environment must be created specially for this command to be executed by general users. For details on creating this type of environment, refer to " as "Setting up the Environment so that it can be Run by General Users".

Example

```
> isomstat
Name                               Status
```

```
-----  
Interstage Operation Management  started
```

11.3 isomstop

Name

isomstop

Stops Interstage Operation Management service.

Synopsis

```
isomstop
```

Description

The isomstop command stops the Interstage Operation Management service.

Return Value

0: Normal end

1: An error occurred.

Note

Windows32/64

- Execute this command with administrator authority.

Solaris32/64 Linux32/64

- Immediately after installation, this command can only be executed by a user with administrator permissions.
- The environment must be created specially for this command to be executed by general users. For details on creating this type of environment, refer to "Setting up the Environment so that it can be Run by General Users".

Example

```
>isomstop  
isomstop: INFO: isom10001: Interstage Operation Management service has stopped.
```

Chapter 12 Backup Commands

This chapter describes the Backup commands.

Supported Commands

Command	Outline	Standard-J Edition	Enterprise Edition
ijbackup	Backup and export of IIServer cluster resources.	Yes	Yes
ijrestore	Restore and import of the IIServer cluster resources.	Yes	Yes

Yes: Supported

No: Not supported

Location of Commands

Platform	Command	Directory
Windows32/64	All commands	C:\Interstage\F3FMisjee\bin
Solaris32/64	All commands	/opt/FJSVisjee/bin
Linux32/64		

12.1 ijbackup

Name

ijbackup

Backup and export of IIServer cluster resources.

Synopsis

```
ijbackup -d directory
```

Description

The ijbackup command backs up and exports IIServer cluster resources.

The following explains the arguments for this command:

-d directory

Specify the absolute path of the directory where the resources are going to be backed up.

It is necessary to create the specified directory before execution of this command. If the directory does not exist, or what was specified is not a directory, the command will fail and the resources will not be backed up and exported.

Return Value

0: Normal end

1: An error occurred.

Notes

- This command requires Administrator authority.
- When executing this command, follow the procedure in "Maintenance (Resource Backup)".
- At the same time that this command is executed backup and export the backup target service resources displayed in the isprintbackuprsc command.

- If this command is executed in batch, an error may occur. In this case follow the above instructions and re-execute the command.

Example

Windows32/64

Save the IJServer cluster resources in the directory "X:\backup":

```
> ijbackup -d X:\Backup
ijbackup: INFO: ISJEE_OM4000: Cluster resource backup has started.
ijbackup: INFO: ISJEE_OM4001: Cluster resource backup completed normally.
```

Solaris32/64 Linux32/64

Save the IJServer cluster resources in the directory "/backup":

```
> ijbackup -d /backup
ijbackup: INFO: ISJEE_OM4000: Cluster resource backup has started.
ijbackup: INFO: ISJEE_OM4001: Cluster resource backup completed normally.
```

12.2 ijrestore

Name

ijrestore

Restore and import of the IJServer cluster resources.

Synopsis

```
ijrestore -d directory [-h hostname] [-f filename]
```

Description

The ijrestore command restores and imports IJServer cluster resources.

If the resources already exist in the specified restore location, they are deleted before the command restores and imports the current resources. Therefore, the log file is also deleted.

The following explains the arguments for this command:

-d directory

Specify the absolute path of the directory where the resources are going to be backed up.

If the directory does not exist, or what was specified is not a directory, the command will fail and the resources will not be restored and imported.

-h hostname

Specify the host name of the import destination machine when it is different from the import source machine.

The value specified for this option is used as the host name for Interstage Java EE DAS service and Interstage Java EE Node Agent service. Set the items that are set using the asadmin command or Interstage Java EE Admin Console in the IP address/host name configuration file specified in the -f option.

-f filename

Specify the IP address/host name configuration file when the host name or IP address of the import destination machine is different from the import source machine.

IP address/host name configuration file format

```
# Comment line<LF>
Definition item name 1=value<LF>
Definition item name 2=value<LF>
Definition item name 3=value<LF>
```

```
<LF>: Line feed delimiter
```

Lines that start with # are treated as comment lines.

Spaces at the start/end of the line are ignored.

Do not insert any spaces before or after =.

Items described in the IP address/host name configuration file

- HTTP service network addresses

If a value other than "0.0.0.0" was set for the HTTP service network address, and the IP address of the import source machine is different from the import destination machine, then the HTTP service network address is set for the following items:

```
default-config.http-service.http-listener.${http-listener-id}.address  
server-config.http-service.http-listener.${http-listener-id}.address  
${clusterName}.http-service.http-listener.${http-listener-id}.address
```

For details on these items, refer to ["7.8.3 HTTP Service Definition Items"](#).

- IIOP service network addresses

If a value other than "0.0.0.0" was set for the IIOP service network address, and the IP address of the import source machine is different from the import destination machine, then the IIOP service network address is set for the following items:

```
default-config.iiop-service.iiop-listener.${iiop-listener-id}.address  
server-config.iiop-service.iiop-listener.${iiop-listener-id}.address  
${clusterName}.iiop-service.iiop-listener.${iiop-listener-id}.address
```

For details on these items, refer to ["7.8.4 IIOP Service Definition Items"](#).

- Admin service network addresses

If a value other than "0.0.0.0" was set for the admin service network address, and the IP address of the import source machine is different from the import destination machine, then the admin service network address is set for the following items:

```
default-config.admin-service.jmx-connector.${name}.address  
server-config.admin-service.jmx-connector.${name}.address  
${clusterName}.admin-service.jmx-connector.${name}.address
```

For details on these items, refer to ["7.8.5 Managed Service Definition Items"](#).

- JMS service hosts

If the host where the message broker exists changes then its name must also be changed.

- When IJServer cluster and the message broker exist in the import source machine

The message broker host name must be changed.

- When the message broker host name is changed using a mode in which the IJServer cluster in the import source machine uses the message broker of another machine

The message broker host name must be changed.

- When the message broker host name is not changed using a mode in which the IJServer cluster in the import source machine uses the message broker of another machine

There is no need to change the message broker host name.

The message broker host name is set for the following items:

```
default-config.jms-service.jms-host.default_JMS_host.host  
server-config.jms-service.jms-host.default_JMS_host.host  
${clusterName}.jms-service.jms-host.default_JMS_host.host
```

For details on these items, refer to ["7.8.10 JMS Service Definition Items"](#).

Examples of setting 192.168.1.1 for the definition item IP addresses



Example

```
# HTTP service network addresses
default-config.http-service.http-listener.default.address=192.168.1.1
server-config.http-service.http-listener.default.address=192.168.1.1
IJServer001.http-service.http-listener.default.address=192.168.1.1
IJServer002.http-service.http-listener.default.address=192.168.1.1

# IIOP service network addresses
default-config.iiop-service.iiop-listener.orb-listener-1.address=192.168.1.1
server-config.iiop-service.iiop-listener.orb-listener-1.address=192.168.1.1
IJServer001.iiop-service.iiop-listener.orb-listener-1.address=192.168.1.1
IJServer002.iiop-service.iiop-listener.orb-listener-1.address=192.168.1.1

# Admin service network addresses
default-config.admin-service.jmx-connector.system.address=192.168.1.1
server-config.admin-service.jmx-connector.system.address=192.168.1.1
IJServer001.admin-service.jmx-connector.system.address=192.168.1.1
IJServer002.admin-service.jmx-connector.system.address=192.168.1.1

# JMS service hosts
default-config.jms-service.jms-host.default_JMS_host.host=192.168.1.1
server-config.jms-service.jms-host.default_JMS_host.host=192.168.1.1
IJServer001.jms-service.jms-host.default_JMS_host.host=192.168.1.1
IJServer002.jms-service.jms-host.default_JMS_host.host=192.168.1.1
```

Return Value

- 0: Normal end
- 1: An error occurred.

Notes

- Execute this command with Administrator authority.
- When executing this command, follow the procedure in "Maintenance (Resource Backup)".
- At the same time as this command is executed import and restore the backup target service resources displayed in the isprintbackupprsc command.
- **Solaris32/64** **Linux32/64**
If the backed up resources were restored/imported from the environment in which the issetsecuritymode command was executed, or the issetsecuritymode command was executed in the restore/import destination, re-execute the issetsecuritymode command.
- If necessary, reset the service operator user using the ijsetoperatorid command.
- If this command is executed in batch, an error may occur. In this case follow the above instructions and re-execute the command.
- If the IJServer cluster resources that were run on JDK (not provided in this version) are migrated, Java EE will run on the JDK that was specified when Java EE was installed on the migration destination, or when the ijinit command was executed.

Example

Windows32/64

To restore the IJServer cluster resources from the directory "X:\backup":

```
> ijrestore -d X:\Backup
ijrestore: INFO: ISJEE_OM4003: Restore of cluster resources has started.
ijrestore: INFO: ISJEE_OM4004: Restore of cluster resources is complete.
```

Solaris32/64 **Linux32/64**

To restore the IJServer cluster resources from the directory "/backup":

```
> ijrestore -d /backup
ijrestore: INFO: ISJEE_OM4003: Restore of cluster resources has started.
ijrestore: INFO: ISJEE_OM4004: Restore of cluster resources is complete.
```

Chapter 13 Java EE Messages

This chapter explains the Java EE-related messages. If a message not listed in this chapter is output, then identify the cause of the problem based on the content of the message body, and follow the appropriate procedure. If no procedure is indicated, then contact a systems engineer.

Message Output Format

The message format is displayed below:

```
label: error type: message number: message content
```



- The 'label' part contains the following: the 'ISJEE' literal, the resource name, and the command name. The 'label' and 'error type' parts may not be output. Labels have been omitted in this chapter.
- The 'message number' parts appear in the format 'ISJEE_XXXX', though the 'ISJEE_' literal may not always appear.

The message number outlined here does not have the 'ISJEE_' literal.

- A message may not have a space between the number and the content, as displayed below:

```
label: error type: message number:message content
```

- Refer to the Messages manual for messages that have 'message number' prefixed by one of the literals below:

- IJServer
- DEP
- is

Before Contacting a Systems Engineer

Collecting data using the Batch Information Collection Tool

If a problem occurs while Interstage is running and it cannot be solved by following the procedure listed in [User Action], then collect the necessary data using iscollectinfo and contact a systems engineer. For details, refer to the "Maintenance Commands" chapter of the Reference Manual (Command Edition).

The iscollectinfo command is stored in the folder below:

Windows32/64

```
C:\Interstage\bin
```

Solaris32/64 **Linux32/64**

```
/opt/FJSSVisas/bin
```



FJQSS (Information Collection Tool) collects the same information as the iscollectinfo command.

Windows32/64

For details on FJQSS, refer to the manual that is displayed from the following menu items:

[Start] > [All Programs] > [FJQSS (Information Collection Tool)] > [FJQSS User's Guide]

For details on FJQSS, refer to the manual stored in the "FJQSS" directory of the Manual package.

13.1 Messages that Contain "ACC" in the Message ID

13.1.1 ACC000 to ACC099

INFO: ISJEE_ACC001:Using ClientContainer file: [{0}].

Variable Information

{0}: file name

Explanation

The specified file was used as the Interstage ACC deployment descriptor file.

WARNING: ISJEE_ACC003: Application threw an exception.

Explanation

An exception occurred during client container processing.

System Action

Processing is interrupted.

User Action

Refer to the exception information output immediately below this message and fix the cause of the error.

If an exception stack trace is output and it contains the string below, then check whether the method of using the annotations coded in the client application is correct.

```
Caused by: com.sun.enterprise.deployment.annotation.context.AppClientContext
```

WARNING: ISJEE_ACC015: Error in XML file: [{0}]. Please check your XML and make sure that your XML and DTD files exist in the correct location (refer to the user doc.) {1}

Variable Information

{0}: file name

{1}: Detail information

Explanation

Command execution failed because there is an incorrect definition in the specified Interstage ACC deployment descriptor file.

System Action

Processing is interrupted.

User Action

Refer to the exception information output immediately below this message and fix the cause of the error.



Note

The Interstage ACC deployment description file does not support the following tags:

- <auth-realm> tag
- <client-credential> tag
- <message-security-config> tag

Also, the following level attribute values of the <log-service> tag are not supported:

- FINEST
- FINER
- FINE
- CONFIG
- ALERT
- FATAL

For details, refer to "[3.2.3.6 Interstage ACC Deployment Descriptor \(sun-acc.xml\)](#)".

ERROR: ISJEE_ACC018: Failed to create client side logger

Explanation

Client side logger generation failed.

System Action

Processing is interrupted.

User Action

Refer to the exception information output immediately below this message and remove the cause of the error.



The Interstage ACC deployment description file does not support the following tags:

- <auth-realm> tag
- <client-credential> tag
- <message-security-config> tag

Also, the following level attribute values of the <log-service> tag are not supported:

- FINEST
- FINER
- FINE
- CONFIG
- ALERT
- FATAL

For details, refer to "[3.2.3.6 Interstage ACC Deployment Descriptor \(sun-acc.xml\)](#)".

ERROR: ISJEE_ACC021:Error from Handler with regards to DTD resolution {0}

Variable Information

{0}: Detail information

Explanation

Command execution failed because there is an incorrect definition in the Interstage ACC deployment descriptor.

System Action

Processing is interrupted.

User Action

Refer to the detail information ({0}) and fix the cause of the error.



The Interstage ACC deployment description file does not support the following tags:

- <auth-realm> tag
- <client-credential> tag
- <message-security-config> tag

Also, the following level attribute values of the <log-service> tag are not supported:

- FINEST
- FINER
- FINE
- CONFIG
- ALERT
- FATAL

For details, refer to "[3.2.3.6 Interstage ACC Deployment Descriptor \(sun-acc.xml\)](#)".

13.1.2 ACC100 to ACC199

WARNING: ISJEE_ACC100: The properties in {0} has been ignored. PROPERTIES={1}

Variable Information

{0}: file name
{1}: property name

Explanation

The {1} specification in the {0} Interstage ACC deployment descriptor file is ignored because it is not supported.

Only the following properties are supported in Interstage ACC deployment descriptor files:

- ssl
- com.sun.appserv.iiop.loadbalancingpolicy
- com.sun.appserv.iiop.endpoints

System Action

Processing is continued.

User Action

Since the property specified at {1} is not supported, specify this property in the environment variable VMARGS and execute the command again.

```
> set VMARGS=-Dproperty=value
```

WARNING: ISJEE_ACC101: The file path does not exist {0}; ignoring it and continuing

Variable Information

{0}: file name or directory

Explanation

The JAR file or directory specified in the manifest file Class-Path or Extension-List does not exist. Therefore, this specification is ignored for the specified client application

System Action

Processing is continued.

User Action

If a ClassNotFoundException or similar error occurs, correct the manifest file Class-Path or Extension-List definition.

WARNING: ISJEE_ACC102: The names specified in the target-server of {0} are duplicate. NAMES={1}

Variable Information

{0}: file name

{1}: Specified target server name

Explanation

The target server name specified in the {0} Interstage ACC deployment descriptor file is duplicated.

System Action

Processing is continued.

User Action

Correct the target server name specified in the Interstage ACC deployment descriptor file so that there is no duplication.

WARNING: ISJEE_ACC103: Could not display a GUI dialog, please check the configuration of X-Window Service.

Explanation

Command execution failed because the GUI dialog cannot be displayed.

System Action

Processing is interrupted.

User Action

Check the X-Window Service settings and execute the command again.

If X-Window Service is not supported, specify -textauth or a similar option and do not use the GUI dialog.

WARNING: ISJEE_ACC104: Authentication is failed.

Explanation

Command execution failed because user authentication failed.

System Action

Processing is interrupted.

User Action

Enter the correct user name and password and execute the command again.

If the correct user name and password were entered, check the values of the following definition items:

- <IJServer name>.heartbeat-enabled
- <IJServer name>.iiop-service.client-authentication-required

If the value of both the above definition items is "true", change one of them to "false" and execute the command again. Refer to the get/set command for the method for getting and setting definition items.

INFO: ISJEE_ACC105: Security Manager is ON.**Explanation**

Security Manager is on.

INFO: ISJEE_ACC106: Security Manager is OFF.**Explanation**

Security Manager is off.

ERROR: ISJEE_ACC107: Port Number is invalid: Specify a number from [1] to [65535]: Value specified={0}**Variable Information**

{0}: Specified port number

Explanation

The specified port number is outside the permitted value range.

System Action

Processing is interrupted.

User Action

Specify a port number within the 1 to 65535 range.

INFO: ISJEE_ACC108: Application main() returned; GUI elements may be continuing to run**Explanation**

Client application processing has stopped.

INFO: ISJEE_ACC109: Clean-up starting**Explanation**

Clean-up processing has started.

13.2 Messages that Contain "ADM" in the Message ID

13.2.1 ADM0000 to ADM0099

INFO: ISJEE_ADM0001:SunoneInterceptor is now enabled**Explanation**

SunoneInterceptor has been enabled.

This is an information message indicating that the container start process was executed correctly.

WARNING: ISJEE_ADM0013: A config exception occurred. Details are:**Explanation**

An error occurred during updating of the Interstage Java EE DAS service definition file.

System Action

Processing is interrupted.

User Action

Refer to the error message output following this message and take any required action.

13.2.2 ADM1000 to ADM1099

ADM1006:Uploading the file to:[{0}]

Variable Information

{0}: Upload destination

Explanation

The file is uploaded.

ISJEE: INFO: ISJEE_ADM1015: Initialization of AMX Mbeans completed

Explanation

AMX MBean initialization is complete and container was started correctly.

WARNING: ISJEE_ADM1024:Undeployment failed - Detailed Message

Explanation

Failed to undeploy during auto-reload.

System Action

Processing is interrupted.

User Action

Remove the cause of the error, and then reexecute.

INFO: ISJEE_ADM1040:Client-jar location:[{0}]

Variable Information

{0}: Location of the client stub JAR file

Explanation

The client stub JAR file is fetched.

ADM1041:Sent the event to instance:[{0}]

Variable Information

{0}: Event content

Explanation

The event is sent to the instance.

ADM1064:The upload file at [{0}] exists and will be overwritten.

Variable Information

{0}: Upload destination

Explanation

The file is uploaded and the existing file is overwritten.

ISJEE_ADM1075:Error on listening event:[{0}]

Variable Information

{0}: Exception information

Explanation

An error occurred while sending an event to an instance.

System Action

Processing is interrupted.

User Action

Follow the action advised in the message output in the variable information to remove the cause of the error, and then execute one of the following operations:

- If this message was output when the enable subcommand was executed:
Execute the disable subcommand and then execute the enable subcommand again.
- If this message was output when the disable subcommand was executed:
Execute the enable subcommand and then execute the disable subcommand again.

INFO: ISJEE_ADM1079: Initialization of AMX MBeans started

Explanation

AMX MBean initialization has started.

This is an information message indicating that the container start process was executed correctly.

ADM1088: Stopping the application failed - Detailed Message:

Explanation

The application stop process failed.

System Action

Processing is interrupted.

User Action

Refer to the error message output immediately after this message and fix the cause of the error, then execute the process again.

13.2.3 ADM1500 to ADM1599

INFO: ISJEE_ADM1504: Here is the JMXServiceURL for the Standard JMXConnectorServer: [{0}]. This is where the remote administrative clients should connect using the standard JMX connectors

Variable Information

{0}: JMX service URL

Explanation

The standard JMX connector server at the JMX service URL output as the variable information is started.

INFO: ISJEE_ADM1506: Status of Standard JMX Connector: Active = [{0}]

Variable Information

{0}: Status

Explanation

The status output as the variable information is the status of the standard JMX connector server. One of the following is displayed as the status:

- true (active)
- false (inactive)

ADM1520: Port {0} is not available for the internal rmi registry. This means that a call was made with the same port, without closing earlier registry instance. This has to do with the system jmx connector configuration in admin-service element of the configuration associated with this instance.

Variable Information

{0}: Port number

Explanation

Initialization failed for an RMI registry using a JMX connector.

System Action

Processing is interrupted.

User Action

- Check whether the port number displayed in the variable information is being used by another process.
If the port number is being used by another process, either stop the process that is using the port or change the port number of the RMI registry that is using a JMX connector, and then execute the operation again.
- Check whether an IP address that cannot be used by the network interface of the local host is specified as the JMX connector address.
If so, change the JMX connector address to an IP address that can be used by the network interface of the local host or to 0.0.0.0, and then execute the operation again.

Refer to the following for information concerning JMX connector definitions:

- For an Interstage Java EE DAS service or an IJServer cluster:
["7.8.5 Managed Service Definition Items"](#)
- For an Interstage Java EE Node Agent service:
["7.2 Interstage Java EE Node Agent Service Definition Items"](#)

ADM1531: Admin user does not belong to the required group.

Explanation

The group to which the service Admin user belongs is invalid.

System Action

Processing is interrupted.

User Action

Check the group to which the service Admin user belongs.

For details, refer to ["14.2.9 When a Message is Output Stating that Authentication has Failed"](#).

13.2.4 ADM1700 to ADM1799

WARNING: ISJEE_ADM1701: An error occurred writing jmx operation log. {0}

Variable Information

{0}: Exception message

Explanation

An error occurred during output of an internal log.

System Action

Processing is continued.

User Action

If other error or warning messages are output, follow the action advised in those messages. Operations are not affected by internal logs not being output, so no action is required if there are no errors or warnings other than this message.

13.2.5 ADM5600 to ADM5699

WARNING: ISJEE_ADM5602:Event handler initialization error [{0}]

Variable Information

{0}: Detail message

Explanation

An error occurred in the initialization of the event handler.

System Action

Processing is continued.

User Action

Take action according to message {0}.

If ISJEE_APPDEP1022 was output immediately before, then application load processing may have failed.

Take the action advised in this message, then redeploy the application.

WARNING: ISJEE_ADM5603:Event listener error [{0}]

Variable Information

{0}: Detail message

Explanation

An event listener error occurred.

System Action

Processing is continued.

User Action

Follow the action advised in the message output in the detailed messages. If detailed messages are not output, follow the action advised in the message output prior to this message.

13.2.6 ADM5800 to ADM5899

WARNING: ISJEE_ADM5802:Error reading key file.

Explanation

An error occurred while reading the information on the connection to the other process.

System Action

Processing is continued.

User Action

There is no need to take action unless the message is output frequently and the error interferes with the application operation.

If this message is output frequently, then restart the services below:

- Interstage Java EE DAS Service
- Interstage Java EE Node Agent Service

- IJServer Cluster

WARNING: ISJEE_ADM5815:Error initializing admin channel client.

Explanation

An error occurred while reading information used to connect to another process

System Action

Processing is continued.

User Action

No action is required unless this message is output frequently and there is an adverse effect on application operation.

If this message is output frequently, restart the following services:

- Interstage Java EE DAS service
- Interstage Java EE Node Agent service
- IJServer cluster

13.3 Messages that Contain "ADMVAL" in the Message ID

13.3.1 ADMVAL1000 to ADMVAL1099

ERROR: ISJEE_ADMVAL1001: Default auth-realm can not be deleted

Explanation

The default realm cannot be deleted.

System Action

Processing is interrupted.

User Action

Perform the operation without deleting the default realm.

ERROR: ISJEE_ADMVAL1002: At least one auth-realm required, auth-realm can not be deleted

Explanation

It is not possible to delete all realms. At least one realm must be defined.

System Action

Processing is interrupted.

User Action

Define at least one realm then perform the operation.

ERROR: ISJEE_ADMVAL1003: Illegal Cluster Name: {0}

Variable Information

{0}: Specified IJServer cluster name

Explanation

An illegal character string was specified in the IJServer cluster name.

System Action

Processing is interrupted.

User Action

Change the IJServer cluster name then execute the operation again.

Refer to "[7.4 Cluster Definition Items](#)" for the character strings that can be specified in IJServer cluster names.

ERROR: ISJEE_ADMVAL1004: The configuration of the Domain Administration Server (named {0}) cannot be referenced by a cluster

Variable Information

{0}: Interstage Java EE DAS service definition name

Explanation

The IJServer cluster cannot reference the Interstage Java EE DAS service definition.

System Action

Processing is interrupted.

User Action

Change the definition referenced by the IJServer cluster then execute the operation again.

ERROR: ISJEE_ADMVAL1005: The default configuration template (named {0}) cannot be referenced by a cluster

Variable Information

{0}: Default definition name

Explanation

The IJServer cluster cannot reference the default definition.

System Action

Processing is interrupted.

User Action

Change the definition referenced by the IJServer cluster then execute the operation again. If you want to use the default definition, copy the definition and use it.

ERROR: ISJEE_ADMVAL1007: System Application, Attribute Not Changeable

Explanation

The system application attribute cannot be changed.

System Action

Processing is interrupted.

User Action

Perform the operation without changing the system application attribute.

ERROR: ISJEE_ADMVAL1008: Attribute(default-virtual-server={0}) : Virtual Server not found

Variable Information

{0}: Virtual host name

Explanation

The specified virtual host does not exist.

System Action

Processing is interrupted.

User Action

Specify a virtual host that is already defined, then execute the operation again.

ERROR: ISJEE_ADMVAL1009: Cannot add this HttpListener '{0}' because it is enabled but its virtual server '{1}' has a state other than "on" ({2})

Variable Information

{0}: HTTP listener name

{1}: Virtual host name

{2}: Virtual host status

Explanation

Addition of the HTTP listener failed because the referenced virtual host is not enabled.

System Action

Processing is interrupted.

User Action

Enable the virtual host output in the variable information, then execute the operation again.

ERROR: ISJEE_ADMVAL1010: Cannot enable this HttpListener '{0}' because its virtual server '{1}' has a state other than "on" ({2})

Variable Information

{0}: HTTP listener name

{1}: Virtual host name

{2}: Virtual host status

Explanation

The HTTP listener cannot be enabled because the referenced virtual host is not enabled.

System Action

Processing is interrupted.

User Action

Enable the virtual host output in the variable information, then execute the operation again.

ERROR: ISJEE_ADMVAL1011: {0} : Invalid Java Debug options should start with -

Variable Information

{0}: Option specification value

Explanation

An invalid Java debug option was specified.

System Action

Processing is interrupted.

User Action

Specify a character string starting with "-" as the Java debug option then execute the operation again.

ERROR: ISJEE_ADMVAL1013: {0} : Invalid javac options should start with -

Variable Information

{0}: Option specification value

Explanation

An invalid javac option was specified.

System Action

Processing is interrupted.

User Action

Specify a character string starting with "-" as the javac option, then execute the operation again.

ERROR: ISJEE_ADMVAL1016: Warning : (java-home={0}), JDK does not exists in java home

Variable Information

{0}: path

Explanation

JDK does not exist in the specified path.

System Action

Processing is interrupted.

User Action

The JDK-related definitions may not be correct.

Use the iscollectinfo command to collect investigation information, then contact your service engineer.

ERROR: ISJEE_ADMVAL1017: Table Name is required Jdbc Connection Pool if Connection validation method is Table

Explanation

The name of the table used for validation has not been specified.

If "table" is selected as the validation method, then the name of the table used for validation must be specified.

System Action

Processing is interrupted.

User Action

Specify the name of the table used for validation, then execute the operation again.

ERROR: ISJEE_ADMVAL1019: Attribute {0} : cannot be null or blank

Variable Information

{0}: Attribute name (option name)

Explanation

Setting the value failed because a blank character string or null was specified as the setting value.

System Action

Processing is interrupted.

User Action

Specify the correct value, then execute the operation again.



The attribute name output at {0} may not match the option name. If it does not, then determine what the option name is from the attribute name and setting value.

ERROR: ISJEE_ADMVAL1020: Attribute {0} cannot have any of illegal characters {1}

Variable Information

{0}: Attribute name (option name)

{1}: Setting value

Explanation

A string containing illegal characters was specified.

System Action

Processing is interrupted.

User Action

Remove the illegal characters ("*", ",", and ":") from the attribute value output in the variable information, then perform the operation again.



The attribute name output at {0} may not match the option name. If it does not, then determine what the option name is from the attribute name and setting value.

ERROR: ISJEE_ADMVAL1022: '{0}' is invalid JVM option. Options must start with - (dash).

Variable Information

{0}: Option specification value

Explanation

An invalid JVM option was specified.

System Action

Processing is interrupted.

User Action

Specify a character string starting with "-" as the JVM option, then execute the operation again.

ERROR: ISJEE_ADMVAL1023: '{0}' is invalid JVM option. Quotes mismatching.

Variable Information

{0}: Option specification value

Explanation

Incorrect double quotes are included in the JVM option.

System Action

Processing is interrupted.

User Action

Remove the incorrect double quotes from the JVM option output in the variable information, then execute the operation again.

ERROR: ISJEE_ADMVAL1028: Illegal Server Name: {0}

Variable Information

{0}: server instance name

Explanation

The server instance name is illegal.

System Action

Processing is interrupted.

User Action

Change the server instance name, then execute the operation again.

ERROR: ISJEE_ADMVAL1029: Cannot change a node agent ref

Explanation

A referenced node agent cannot be changed.

System Action

Processing is interrupted.

User Action

The name of a referenced node agent cannot be changed.

Perform the operation without changing the referenced node agent name.

ERROR: ISJEE_ADMVAL1030: Invalid Server Name {0}: Required "server"

Variable Information

{0}: server instance name

Explanation

The Interstage Java EE DAS service definition does not exist.

System Action

Processing is interrupted.

User Action

Define a standalone instance "server", then execute the operation again.

ERROR: ISJEE_ADMVAL1031: The configuration of the Domain Administration Server (named {0}) cannot be referenced by a server

Variable Information

{0}: Interstage Java EE DAS service definition name

Explanation

The Interstage Java EE DAS service definition cannot be referenced from the server instance.

System Action

Processing is interrupted.

User Action

Change the definition reference destination of the server instance, then execute the operation again.

ERROR: ISJEE_ADMVAL1032: The default configuration template (named {0}) cannot be referenced by a server

Variable Information

{0}: Default definition name

Explanation

The default definition cannot be referenced from the server instance.

System Action

Processing is interrupted.

User Action

Change the definition reference destination of the server instance, then execute the operation again.

ERROR: ISJEE_ADMVAL1033: Cannot change a config-ref when the instance is part of a cluster

Explanation

The definition reference destination of a server instance under an IIServer cluster cannot be changed.

System Action

Processing is interrupted.

User Action

Change the definition reference destination of the IIServer cluster rather than of the server instance.

ERROR: ISJEE_ADMVAL1034: ssl2 cannot be enabled for an iiop-listener

Explanation

SSL2 cannot be enabled for an IIOP listener.

System Action

Processing is interrupted.

User Action

SSL2 cannot be used as the security protocol for IIOP listener. Use SSL3 instead.

ERROR: ISJEE_ADMVAL1036: Cannot disable the virtual server {0} because this is the default virtual server for the http listener '{1}'

Variable Information

{0}: Virtual host name

{1}: HTTP listener name

Explanation

The virtual host cannot be disabled because it is the default virtual host for the enabled HTTP listener.

System Action

Processing is interrupted.

User Action

Disable the HTTP listener output in the variable information, then execute the operation again.

ERROR: ISJEE_ADMVAL1038: Attribute({0}=null) : Null address not permitted

Variable Information

{0}: Attribute name (option name)

Explanation

A blank cannot be specified as the host name or IP address.

System Action

Processing is interrupted.

User Action

Specify the correct host name or IP address, then execute the operation again.



.....
The attribute name output in the variable information may not match the option name. If it does not, then determine what the option name is from the attribute name and setting value.
.....

ERROR: ISJEE_ADMVAL1039: Attribute({0}={1}) : ClassName not Valid

Variable Information

{0}: Attribute name (option name)

{1}: Setting value

Explanation

An invalid class name was specified.

System Action

Processing is interrupted.

User Action

Specify the correct class name.



.....
The attribute name output in the variable information may not match the option name. If it does not, then determine what the option name is from the attribute name and setting value.
.....

ERROR: ISJEE_ADMVAL1040: Attribute({0}=\") : ClassName not Valid

Variable Information

{0}: Attribute name (option name)

Explanation

The operation failed because a blank was specified in the class name.

System Action

Processing is interrupted.

User Action

Specify the correct class name, then execute the operation again.

Note

The attribute name output in the variable information may not match the option name. If it does not, then determine what the option name is from the attribute name and setting value.

ERROR: ISJEE_ADMVAL1043: Attribute({0}={1}) : {1} Invalid integer

Variable Information

{0}: Attribute name (option name)

{1}: Setting value

Explanation

A value other than a numerical value was specified.

System Action

Processing is interrupted.

User Action

Specify a numerical value, then execute the operation again.

Note

The attribute name output at {0} may not match the option name. If it does not, then determine what the option name is from the attribute name and setting value.

ERROR: ISJEE_ADMVAL1044: Attribute({0}={1}) : {1} Invalid Value, Cannot be a negative number

Variable Information

{0}: Attribute name (option name)

{1}: Setting value

Explanation

The setting value is not 0 or a positive integer.

System Action

Processing is interrupted.

User Action

Set 0 or a positive integer as the value.

Note

The attribute name output at {0} may not match the option name. If it does not, then determine what the option name is from the attribute name and setting value.

ERROR: ISJEE_ADMVAL1045: '{0}' is invalid value for {1} attribute. Valid range for this value is from {2} to {3}

Variable Information

{0}: Setting value
{1}: Attribute name (option name)
{2}: Minimum value
{3}: Maximum value

Explanation

The setting value is outside the permitted value range.

System Action

Processing is interrupted.

User Action

Set a value within the range.



Note

The attribute name output at {1} may not match the option name. If it does not, then determine what the option name is from the attribute name and setting value.

ERROR: ISJEE_ADMVAL1046: Attribute[{0}={1}] : String {2} length is greater than maximum length {3}

Variable Information

{0}: Attribute name (option name)
{1}: Setting value
{2}: Setting value
{3}: Maximum character string length

Explanation

The character string length of the setting value exceeded the permitted maximum character string length.

System Action

Processing is interrupted.

User Action

Set a value within the maximum character string length range.

ERROR: ISJEE_ADMVAL1047: Value '{0}' is not valid for attribute '{1}' of {2}. {3}

Variable Information

{0}: Setting value
{1}: Attribute name (option name)
{2}: Function name
{3}: Check rule

Explanation

The setting value is incorrect.

System Action

Processing is interrupted.

User Action

Set the correct value.

If the setting value contains a blank, remove the blank.



The attribute name output at {1} may not match the option name. If it does not, then determine what the option name is from the attribute name and setting value.

ERROR: ISJEE_ADMVAL1048: Attribute({0}={1}) : Invalid String - Required {2}**Variable Information**

{0}: Attribute name (option name)

{1}: Setting value

{2}: List of expected values

Explanation

The setting value is incorrect.

System Action

Processing is interrupted.

User Action

Set a character string output in the listed of expected values.



The attribute name output at {0} may not match the option name. If it does not, then determine what the option name is from the attribute name and setting value.

ERROR: ISJEE_ADMVAL1049: Attribute '{0}' is mandatory. A null value is not allowed**Variable Information**

{0}: Attribute name (option name)

Explanation

This attribute cannot be omitted.

System Action

Processing is interrupted.

User Action

Specify the value of the attribute shown in the variable information, then execute the operation again.



The attribute name output at {0} may not match the option name. If it does not, then determine what the option name is from the attribute name and setting value.

ERROR: ISJEE_ADMVAL1050: Cannot change a primary key**Explanation**

The specified item cannot be changed after the definition is created.

System Action

Processing is interrupted.

User Action

If you want to change the value of the specified item, then temporarily delete the definition and create the definition again.

ERROR: ISJEE_ADMVAL1051: Element with the same attribute value ({0} = {1}) already exists.

Variable Information

{0}: Attribute name (option name)

{1}: Setting value

Explanation

The specified attribute is already defined.

System Action

Processing is interrupted.

User Action

Delete or rename the setting value shown in the variable information, then execute the operation again.



.....

The attribute name output at {0} may not match the option name. If it does not, then determine what the option name is from the attribute name and setting value.

.....

ERROR: ISJEE_ADMVAL1052: Element {0} can not be deleted because it is referenced from {1}

Variable Information

{0}: Specified definition name

{1}: Definition name

Explanation

The specified definition cannot be deleted because it is referenced from other definitions.

System Action

Processing is interrupted.

User Action

Delete the definition output at {1} or delete the reference from the definition, then execute the command again.

Note that, if the connector connection pool output at {0} is used in more than one JMS connection factory, then this message may be posted when a JMS connection factory is deleted. Ignore this message if a JMS connection factory is being deleted.

ERROR: ISJEE_ADMVAL1053: Attribute value ({0} = {1}) is not unique in {2}.

Variable Information

{0}: Attribute name (option name)

{1}: Setting value

{2}: Definition list name

Explanation

The specified value is not unique within the definition list.

System Action

Processing is interrupted.

User Action

Specify a value that is unique within the definition list, then execute the operation again.



The attribute name output at {0} may not match the option name. If it does not, then determine what the option name is from the attribute name and setting value.

ERROR: ISJEE_ADMVAL1054: Attribute value ({0} = {1}) is not found in {2}.

Variable Information

{0}: Attribute name (option name)
{1}: Setting value
{2}: Definition list name

Explanation

The setting value is not registered in the definition list.

System Action

Processing is interrupted.

User Action

Set a value that is registered in the definition list.



- The attribute name output at {0} may not match the option name. If it does not, then determine what the option name is from the attribute name and setting value.
- If ADMVAL1054 is output by the definition validation command, then add a definition for the attribute name output at {0}.

ERROR: ISJEE_ADMVAL1061: At least one required {0} should be present in {1}. Deletion rejected.

Variable Information

{0}: Specified definition name
{1}: Definition item

Explanation

Definition deletion failed. There must be at least one definition.

System Action

Processing is interrupted.

User Action

Ensure there is at least one specified definition before performing the operation.
To delete the definition, first create another deletion then execute the deletion operation.

ERROR: ISJEE_ADMVAL1063: '{0}' property should be provided for FileRealm type.

Variable Information

{0}: Property name

Explanation

A property required by the file realm is not defined.

System Action

Processing is interrupted.

User Action

Specify the property required by the file realm, then execute the operation again.

ERROR: ISJEE_ADMVAL1064: '{0}' property should be provided for LDAPRealm type.

Variable Information

{0}: Property name

Explanation

A property required by the ldap realm was not defined.

System Action

Processing is interrupted.

User Action

Specify the property required by the ldap realm, then execute the operation again.

ERROR: ISJEE_ADMVAL1065: "{0}" property should be provided for OSRealm type.

Variable Information

{0}: Property

Explanation

A property required for the operating system realm was not defined.

System Action

Processing is interrupted.

User Action

Specify the property and execute the command again.

ERROR: ISJEE_ADMVAL1070: {0} is rejected.

Variable Information

{0}: Operation type

Explanation

The specified operation failed.

System Action

Processing is interrupted.

User Action

Follow the advice in the message output immediately prior to this message and fix the cause of the error, then execute the command again.

ERROR: ISJEE_ADMVAL1071: Combination of properties {0}={1} and {2}={3} is not allowed.

Variable Information

- {0}: Attribute name (option name)
- {1}: Setting value
- {2}: Attribute name (option name)
- {3}: Setting value

Explanation

The definition combination is incorrect.

System Action

Processing is interrupted.

User Action

The definitions shown in the variable information cannot both be specified. Delete one of the definitions, then execute the operation again.



The attribute name output at {0} may not match the option name. If it does not, then determine what the option name is from the attribute name and setting value.

ERROR: ISJEE_ADMVAL1075: The http-listener reserved for administrative purposes can not be deleted.

Explanation

The HTTP listener used for administration cannot be deleted.

System Action

Processing is interrupted.

User Action

Perform the operation without deleting the HTTP listener used for administration.

ERROR: ISJEE_ADMVAL1076: The http-listener reserved for administrative purposes can not be disabled.

Explanation

The HTTP listener used for administration cannot be disabled.

System Action

Processing is interrupted.

User Action

Perform the operation with the HTTP listener used for administration in the enabled state.

ERROR: ISJEE_ADMVAL1078: Invalid value for '{0}' attribute.. '{1}' is incorrect network address since it contains non-ASCII characters.

Variable Information

- {0}: Attribute name (option name)
- {1}: Setting value

Explanation

An incorrect network address was specified.

The network address must be comprised of ASCII characters.

System Action

Processing is interrupted.

User Action

Specify the correct network address, then execute the operation again.

13.3.2 ADMVAL2000 to ADMVAL2099

ERROR: ISJEE_ADMVAL2000: {0} : Invalid -Xrunjdpw option, please check syntax

Variable Information

{0}: Debug option

Explanation

An invalid debug option was specified.

System Action

Processing is interrupted.

User Action

Specify the correct debug option value, then execute the operation again.

ERROR: ISJEE_ADMVAL2001: Value ({0}) should be less or equal than to value of attribute {1} ({2})

Variable Information

{0}: Specified definition item value

{1}: Definition item name

{2}: Maximum value of definition item

Explanation

A value outside the valid range was specified.

System Action

Processing is interrupted.

User Action

Specify a value within the valid range, then execute the operation again.

ERROR: ISJEE_ADMVAL2002: Value ({0}) should be more or equal to value of attribute {1} ({2})

Variable Information

{0}: Specified definition item value

{1}: Definition item name

{2}: Minimum value of definition item

Explanation

A value outside the valid range was specified.

System Action

Processing is interrupted.

User Action

Specify a value within the valid range, then execute the operation again.

ERROR: ISJEE_ADMVAL2003: Invalid value for '{0}' attribute. Cannot find Resource Adapter with the specified name '{1}'.

Variable Information

- {0}: Definition item name
- {1}: Specified definition item value

Explanation

The specified resource adapter could not be found.

System Action

Processing is interrupted.

User Action

Check whether the specified resource adapter exists.

13.4 Messages that Contain "APPCONFIG" in the Message ID

13.4.1 APPCONFIG1000 to APPCONFIG1099

ERROR: ISJEE_APPCONFIG1001: Cannot determine type for target : {0}

Variable Information

- {0}: Target name

Explanation

The specified target does not exist.

System Action

Processing is interrupted.

User Action

Specify the name of an existing target then execute the processing again.

APPCONFIG1002: Component not registered

Explanation

The specified application does not exist.

System Action

Processing is interrupted.

User Action

Specify the name of an existing application, then execute the processing again.

ERROR: ISJEE_APPCONFIG1003: Operation {0} is not applicable for {1}

Variable Information

- {0}: Operation name
- {1}: Application name

Explanation

An operation that is invalid in relation to appclient-module was executed.

System Action

Processing is interrupted.

User Action

Specify an application other than applclient-module, then execute the processing again.

APPCONFIG1004: This is an Unsupported Operation.

Explanation

An operation (fetching the application status) that is invalid in relation to applclient-module was executed.

System Action

Processing is interrupted.

User Action

Specify an application other than applclient-module, then execute the processing again.

APPCONFIG1005: Unable to read file. path={0}

Variable Information

{0}: File path name

Explanation

File read processing failed.

System Action

Processing is interrupted.

User Action

Execution of other operations may be in progress.

Check the application status and then execute the processing again.

APPCONFIG1006: ApplicationsConfigMBean.getModuleComponents failed

Explanation

Failed to get the list of applications.

System Action

Processing is interrupted.

User Action

Refer to the message output at the same time, then take action.

13.5 Messages that Contain "APPDEP" in the Message ID

13.5.1 APPDEP1000 to APPDEP1099

APPDEP1001: Some verifier tests failed for the given application. Aborting deployment. Please verify your application using the verifier separately for more details

Explanation

Application validation detected an error.

System Action

Processing is interrupted.

User Action

Remove the cause of the error as indicated in the content output as the validation results, then execute the processing again.

- File name

[application name] + [time stamp].txt, or

[application name] + [time stamp].xml

- Output destination

Windows32/64

```
[Java EE common directory]\domains\interstage\logs\verifier-results
```

Solaris32/64 Linux32/64

```
[Java EE common directory]/domains/interstage/logs/verifier-results
```



When the validation function is used repeatedly, many files are generated in the validation results output directory, and this may cause disk congestion.

Therefore, after the problems in the validation results have been checked and counter-measures are completed, manually delete files as required.

APPDEP1002: Illegal characters in component name. The value must start with a letter or number and may contain letters, numbers or the following characters: -_.;#

Explanation

Characters which cannot be used were specified in the application name.

System Action

Processing is interrupted.

User Action

Specify characters that can be used in the application name, then execute the processing again.

APPDEP1003: An invalid Java Version is specified. Invalid Version: {0}

Variable Information

{0}: Specified Java version

Explanation

The specified Java version is incorrect.

System Action

Processing is interrupted.

User Action

Specify the correct Java version, then execute the processing again.

APPDEP1004: Error expanding archive {0}

Variable Information

{0}: file name

Explanation

Expansion failed for the file targeted for deployment.

System Action

Processing is interrupted.

User Action

Possible causes are shown below. Remove the cause of the error, then execute the processing again.

- The length of the specified application name may exceed the OS limit for the length of directory names. Change the application name.
- If the module type of the file to be deployed is j2ee-application(.ear), then check the values entered for the following application.xml tags and the target file:
 - <application><module><connector>
 - <application><module><ejb>
 - <application><module><java>
 - <application><module><web><web-uri>
- Access to the file or directory may have failed due to the disk being corrupted. Check the disk.
- There may be no free space on the disk. Ensure there is ample free space.
- Check the format of the file targeted for deployment, then execute the processing again.

The following is a possible cause if the application output as the variable information is a Connector module:

- The jar files included in the Connector module are expanded directly under the directories shown below.

If multiple jar files are included in the Connector module, this message may be output as a result of an attempt to create files/directories in the same path of the expansion destination.

Check whether any of the jar files included in the Connector module have the same file/directory name.

Windows32/64

```
[Java EE common directory]\domains\interstage\applications\j2ee-apps\[application name]\
[Connector module name_extension]
[Java EE common directory]\domains\interstage\applications\j2ee-modules\[application name]
```

Solaris32/64 Linux32/64

```
[Java EE common directory]/domains/interstage/applications/j2ee-apps/[application name]/
[Connector module name_extension]
[Java EE common directory]/domains/interstage/applications/j2ee-modules/[application name]
```

APPDEP1005: Application {0} is already deployed on other targets. Please remove all references or specify all targets (if not using asadmin command line) before attempting {1} operation

Variable Information

{0}: Application name

{1}: Operation name

Explanation

If "redeploy" is output as the operation name, an application with the same name has already been deployed to another IJServer cluster. If "undeploy" is output, the name of an application that is deployed at another IJServer cluster was specified.

System Action

Processing is interrupted.

User Action

Take one of the following actions, then execute the processing again:

- If "redeploy" is output as the operation name:
 - Change the application name.
- If "undeploy" is output as the operation name:
 - Specify the correct IIServer cluster.
 - Specify the correct application name.

APPDEP1006: Cannot deploy, module already exists. You may attempt to force the module to redeploy, or deploy under an available module name.

Explanation

An application with the same name is already deployed.

System Action

Processing is interrupted.

User Action

Take one of the following actions, then execute the processing again:

- Set "true" for the force option.
- Change the application name.
- Undeploy the application that is deployed to another target.

APPDEP1007: Unable to find the archive to be deployed in specified location.

Explanation

The specified deployment target file could not be found.

System Action

Processing is interrupted.

User Action

Specify an existing deployment target file, then execute the processing again.

APPDEP1008: Deploying application in domain failed

Explanation

Application deployment failed.

System Action

Processing is interrupted.

User Action

Take the action advised in the message output at the same time, then execute the command again.

If "Internal Exception:" and exception information are output, then take the action advised in the exception information. Refer to "Exception information" for information concerning the exception information.

If "Missing service QName.", "Missing port QName.", "Missing output directory." or "Missing stubsdir." is output, then review the web service application. For example, if the web service application is a default package class or interface, then ensure that the targetNamespace element is specified in the @WebService annotation.

If "is20725: Failed to connect to the server Error information=%s" was output, it will be necessary to start the Interstage JMX service. After the Interstage JMX service has started, reexecute processing.

If the ijsmartsetup command was used, check the following:

- If the length of the specified .war file name (except for the file extension) has exceeded 64 characters, specify a maximum of 64 characters.

APPDEP1009: While undeploying, trying to stop application in target {0} {1}

Variable Information

{0}: IJServer cluster name

{1}: Error level

Explanation

An error or warning was issued for application undeployment.

System Action

If "failed" is output as the variable information error level, then processing is interrupted.

Otherwise, processing continues.

User Action

If required, take the action advised in the message output at the same time, then execute the processing again.

APPDEP1010: Trying to undeploy application from domain {0}

Variable Information

{0}: Error level

Explanation

An error or warning was issued for application undeployment.

System Action

If "failed" is output as the variable information error level, then processing is interrupted.

Otherwise, processing continues.

User Action

If required, take the action advised in the message output at the same time, then execute the processing again.

If the above does not solve the problem, then refer to "[Chapter 14 Troubleshooting](#)" > "[14.2.3 Application Operational Errors](#)" > "[If APPDEP1010 is Output when the Application is Redeployed or Undeployed](#)".

ERROR: ISJEE_APPDEP1011: The target {0} is invalid. Valid target types are cluster, domain, unclustered server instance, domain administration server.

Variable Information

{0}: Target name

Explanation

The specified target does not exist.

System Action

Processing is interrupted.

User Action

Specify the correct target name, then execute the processing again.

APPDEP1012: Connector dependent resources are existing: {0}. Please delete them and retry or use the cascade option to undeploy: asadmin undeploy --cascade=true {1}

Variable Information

{0}: Connector connection pool name, connector resource name and managed object resource name
{1}: Application name

Explanation

Undeployment failed because there is a connector connection pool, connector resource and managed object resource associated with the resource adapter.

System Action

Processing is interrupted.

User Action

Take one of the following actions, then execute the processing again:

- Delete the connector connection pool, connector resource and managed object resource that are associated with the resource adapter.
- Set "true" as the cascade option.

APPDEP1013: Component [{0}] is not registered.

Variable Information

{0}: Application name

Explanation

The specified application does not exist.

System Action

Processing is interrupted.

User Action

Specify the name of an existing application, then execute the processing again.

APPDEP1014: Error loading deployment descriptors for module [{0}] -- {1}

Variable Information

{0}: Application name
{1}: Error cause

Explanation

An error occurred during deployment descriptor read.

System Action

Processing is interrupted.

User Action

Take the actions indicated below, then execute the processing again. If the following actions do not solve the problem, then contact your technical staff:

- Take the action advised in the message output as the error cause in the variable information.

- If the following is output in the variable information, then take the action advised in the explanation:
 - Cannot resolve reference Unresolved Ejb-Ref
The EJB reference cannot be resolved. For details on how to resolve it, refer to "[2.14 JNDI](#)" > "[2.14.2 Environment Naming Context](#)".
- Enable the deployment validation function and perform deployment again, then take the action advised in the message output.

APPDEP1015: Error loading deployment descriptors for module [{0}] Line {1} Column {2} -- {3}**Variable Information**

- {0}: Application name
- {1}: Line number for which error is issued
- {2}: Column number for which error is issued
- {3}: Error cause

Explanation

An error occurred during deployment descriptor read.

System Action

Processing is interrupted.

User Action

Take the action advised in the message output as the error cause in the variable information, then execute the processing again.

APPDEP1016: Trying to create reference for application in target {0} {1}**Variable Information**

- {0}: IJServer cluster name
- {1}: Error level

Explanation

An error or warning was issued for creating application reference information.

System Action

If "failed" is output as the variable information error level, then processing is interrupted.

Otherwise, processing continues.

User Action

If required, take the action advised in the message output at the same time, then execute the processing again.

APPDEP1017: The context root [{0}] in application [{1}] is already in use by another application on this instance [{2}].**Variable Information**

- {0}: Context root setting value
- {1}: Application name
- {2}: IJServer cluster name

Explanation

The value set for the context root is already in use by an application deployed to the same IJServer cluster.

System Action

Processing is interrupted.

User Action

Change the context root value, then execute the processing again.

Note that, if web service application in the Stateless Session Bean format is deployed, then the name taken from the context root used in the web service URL (minus the leading "/") is used as the setting value.

Change the class/instance name used for the web service end point or the @WebService.serviceName value.

APPDEP1018: Cleanup failed: {0}

Variable Information

{0}: Directory name

Explanation

File deletion failed.

System Action

If during deployment or redeployment, processing is interrupted.

If during undeployment, processing is continued.

User Action

Deletion may have failed for the directory output in the variable information.

If deletion failed for more than one directory, then these are separated by semicolons in the output.

Check that none of the files under the directories output in the variable information are currently being used, then take the following actions:

- If this message is output during deployment or redeployment, then execute the processing again.
- If this message is output during undeployment, then manually delete the file, if required.

If the above counter-measures could not be taken, perform the following:

- Wait a while, then perform the countermeasures again.
- Reactivate the Interstage Java EE DAS service or the operation target IJServer cluster, then perform the countermeasures again.

If this problem occurs frequently during undeployment or redeployment of applications, including Web service applications, try the following countermeasures:

- Specify the following system property in the Interstage Java EE DAS service:
 - Key: com.fujitsu.interstage.javaee.webservice.deploy.wsutil.cleanafterwsgen
 - Value: true
- Setting procedure example: From the Interstage Java EE Admin Console, open Settings> server-config> JVM settings JVM options tab, click "Add JVM option", enter "-Dcom.fujitsu.interstage.javaee.webservice.deploy.wsutil.cleanafterwsgen=true" in the added blank field, and click "Save". Then restart the Interstage Java EE DAS service.

APPDEP1019: Invalid Module Type. Application name is {0}.

Variable Information

{0}: Application name

Explanation

The application type of the specified application name is incorrect.

System Action

Processing is interrupted.

User Action

The application type of the specified application name may be a lifecycle module.

In order to delete a lifecycle module, use the delete-lifecycle-module subcommand.

APPDEP1020: Error occurred during application loading phase. The application will not run properly. Please fix your application and redeploy.

Explanation

Application load failed. Therefore, the application may not run correctly.

System Action

Processing is continued.

User Action

Follow the action advised in the information output next, then redeploy.

APPDEP1021: Error while loading application [{0}]. Please refer to the server log for more details.

Variable Information

{0}: Application name

Explanation

Application load failed.

System Action

Processing is continued.

User Action

Follow the action advised in the server log file of the Interstage Java EE DAS service.

INFO: ISJEE_APPDEP1022: deployed with moduleid = {0}

Variable Information

{0}: Application name

Explanation

The application was deployed.

WARNING: ISJEE_APPDEP1023: Undeployment of component [{0}] failed. {1}

Variable Information

{0}: Application name

{1}: Error cause

Explanation

Application undeployment failed.

System Action

Processing is interrupted.

User Action

If required, follow the action advised in the content of the variable information.

ISJEE_APPDEP1024: autoDeployment status dir missing, creating a new one

Explanation

A directory used by internal processing was created.

ISJEE_APPDEP1025: [AutoDeploy] Selecting file {0} for autodeployment.

Variable Information

{0}: Deployment target file

Explanation

Deploy the application output in the variable information.

ISJEE_APPDEP1026: [AutoDeploy] Successfully autodeployed : {0}.

Variable Information

{0}: Deployment target file

Explanation

Deployment of the application output in the variable information succeeded.

APPDEP1027: The following app client(s) did not specify the manifest Main-Class attribute: {0}

Variable Information

{0}: Deployment target file name or, if an EAR file was deployed, the name of the module in the EAR file

Explanation

The Main-Class attribute was not specified in the manifest file of the client application output in the variable information.

System Action

Processing is continued.

User Action

If required, specify the Main-Class attribute in the manifest file, then deploy again correctly.

If the Main-Class attribute was not specified in more than one module, then these are output separated by commas in the variable information.

APPDEP1028: Retrieve client stub operation does not apply to module [{0}] with module type [{1}].

Variable Information

{0}: Application name

{1}: Module type

Explanation

The client stub JAR could not be retrieved from the application shown in the variable information.

System Action

Processing is continued.

User Action

The client stub JAR can be retrieved only by an EJB application, a client application, or an EAR that contains either an EJB application or a client application.

In other cases, the client stub JAR cannot be retrieved.

INFO: ISJEE_APPDEP1029: Dynamic deployment is ON

Explanation

An application that is used in Interstage Java EE or is auto-reloaded was deployed and then started. This message is output when the Interstage Java EE DAS service first starts up, or when reload (auto reload) is executed.

APPDEP1030: Processing cannot be performed because another operation is executing.

Explanation

Processing cannot continue because another operation is being executed.

System Action

Processing is interrupted.

User Action

Wait a while, and then execute the processing again.

If this message is output when other operations are not being executed, exclusion information may remain in the Interstage Java EE DAS service.

Restart the Interstage Java EE DAS service and then execute the processing again.

APPDEP1031: Abnormalities arose during an exclusive operation. detail={0}

Variable Information

{0}: Detail information

Explanation

An error occurred during exclusion processing.

System Action

Processing is interrupted.

User Action

Exclusion information may remain in the Interstage Java EE DAS service.

If APPDEP1030 was issued when no other operations were being executed, restart the Interstage Java EE DAS service.

APPDEP1032: Process cannot be aborted. There will be a wait until process is complete.

Explanation

Processing cannot be interrupted when the following subcommands are being executed:

- deploy
- undeploy
- get-client-stubs

APPDEP1033: Failed to delete the temporary file: [{0}]

Variable Information

{0}: Temporary file name

Explanation

Deletion of the temporary file failed.

System Action

Processing is continued.

User Action

The disk space may have been used up. If required, manually delete the temporary file that is output in the variable information.

APPDEP1034: While undeploying, trying to remove reference for application in target {0}

Variable Information

{0}: Target name

Explanation

Undeployment failed.

System Action

Processing is interrupted.

User Action

Undeployment may already have been performed by another operation.
Check the application status and, if required, execute the processing again.

APPDEP1035: Cannot deploy, module already exists.

Explanation

An application with the same name but different use of upper/lower-case is already deployed.

System Action

Processing is interrupted.

User Action

An application with the same name but different use of upper/lower-case cannot be deployed. Change the application name and then execute the processing again.
If message OM1060 was issued prior to this message for an operation involving the same application name, execute undeployment and then execute the processing again.

APPDEP1036: Application {0} is already deployed on other targets. Please use create-application-ref command to create reference to the specified target

Variable Information

{0}: Application name

Explanation

The name of an application that is deployed to another target was specified.

System Action

Processing is interrupted.

User Action

Take one of the following actions and then execute the processing again:

- Change the application name.
- Undeploy the application that is deployed to another target.

APPDEP1037: Error loading deployment descriptors for module [{0}]

Variable Information

{0}: Application name

Explanation

Deployment descriptor read processing failed.

System Action

Processing is interrupted.

User Action

Execution of other operations may be in progress.

Check the application status and then execute the processing again.

WARNING: ISJEE_APPDEP1038: Cannot load {0}

Variable Information

{0}: Class name

Explanation

Class load processing failed.

System Action

Load processing is interrupted for the class that is output in the variable information and processing is continued.

User Action

Add the class that is output in the variable information to the application or the class path.

If this message was output when executing an application client container, it may not be possible to load the class specified in the Main-Class attribute of the client JAR manifest file. Check whether the class specified in the Main-Class attribute is correct.

APPDEP1039: Error while finding web module [{0}] from the config.

Variable Information

{0}: Application name

Explanation

The application could not be found.

System Action

Processing is interrupted.

User Action

A conflict may have occurred in the Interstage Java EE DAS service or the IJServer cluster. Restart the Interstage Java EE DAS service or the IJServer cluster.

APPDEP1040: Error while loading EJB module [{0}]. Please refer to the server log for more details.

Variable Information

{0}: Application name

Explanation

Application load processing failed.

System Action

Processing is continued.

User Action

Refer to the server log files of the Interstage Java EE DAS service and the IJServer cluster and take any required action.

If message OM1060 was output prior to this message, a conflict may have occurred in the Interstage Java EE DAS service or the IJServer cluster. Restart the Interstage Java EE DAS service or the IJServer cluster.

APPDEP1041: While redeploying, trying to stop the application in target {0} {1}

Variable Information

{0}: Target name

{1}: Error level

Explanation

An error or warning was issued for application redeployment.

System Action

If the error level "failed" is output in the variable information, processing is interrupted.

In other cases, processing is continued.

User Action

If required, follow the action advised in messages output at the same time to remove the cause of the error, and then execute the processing again.

APPDEP1042: Exception occurred in J2EEC Phase

Explanation

An error occurred during deployment processing.

System Action

Processing is interrupted.

User Action

Refer to the error message output following this message and take any required action, then redeploy.

If the stack trace contains "com.sun.enterprise.webservice.WsUtil.generateFinalWsdll", an error may have occurred in XML parsing. If the application resource (such as the content under WEB-INF/lib in the deployment files) includes XML-related jar files, remove those jar files, then redeploy. If the XML-related jar files are required for the execution of the application and cannot be removed from the application material, take the following action:

- Specify the following system properties for the Interstage Java EE DAS service:
 - **Key:** com.sun.enterprise.webservice.WsUtil.disableAppClassLoaderWS
 - **Value:** true
- 1. From the Interstage Java EE Admin Console, select [Configurations] > [server-config] > [JVM Settings].
- 2. Click the [JVM Options] tab.
- 3. Click [Add JVM Option], then enter "-Dcom.sun.enterprise.webservice.WsUtil.disableAppClassLoaderWS=true" in the line added.
- 4. Click [Save].
- 5. Restart the Interstage Java EE DAS service

APPDEP1043: Class [{0}] not found. Error while loading [{1}]

Variable Information

{0}: Class name

{1}: Class name

Explanation

Class {0} could not be found during load processing for Class {1}.

User Action

Add Class {0}, output in the variable information, to the application or the classpath and then execute the processing again.

APPDEP1044: Error in annotation processing: {0}

Variable Information

{0}: Detail information

Explanation

Class load processing failed.

User Action

Refer to the details message and remove the cause of the failure, and then execute the processing again.

APPDEP1045: Deployment of application failed - {0}

Variable Information

{0}: Detail information

Explanation

Failed to deploy the application.

System Action

Processing is interrupted.

User Action

Take action according to message {0}.

If the action advised in the detail message cannot be taken, then take action according to the message output to the Interstage Java EE DAS service server log.

APPDEP1046: Deployment has succeeded with following warning, please look at the log file for details {0}

Variable Information

{0}: Detail information

Explanation

Deployment, Undeployment, Archive expansion or Canceling archive expansion has succeeded with some warnings.

User Action

Take action according to message {0}.

If the action advised in the detail message cannot be taken, then take action according to the message output to the Interstage Java EE DAS service server log.

APPDEP1047: The specified application cannot be deployed in this edition. :[{0}]

Variable Information

{0}: Application

Explanation

The specified application cannot be deployed in this edition.

System Action

Processing is interrupted.

User Action

For details on the applications that can be used in this edition, refer to "[10.1 asadmin](#)" > "[10.1.1 List of Subcommands of the asadmin Command](#)".

13.5.2 APPDEP2000 to APPDEP2099

ERROR: ISJEE_APPDEP2001: class {0} referenced from annotation symbol cannot be loaded

Variable Information

{0}: Class name

Explanation

Class {0} that is referenced from the annotation symbol cannot be loaded.

System Action

Processing is interrupted.

User Action

Refer to the exception information output after this message and fix the cause of the error, then execute again.

ERROR: ISJEE_APPDEP2002: component referenced from annotation symbol cannot be found

Explanation

A problem was detected during analysis of the deployed file.

System Action

Processing is interrupted.

User Action

Refer to the exception information output after this message and fix the cause of the error, then execute again.

ERROR: ISJEE_APPDEP2003: wsdl file {0} for web service {1} must be packaged in or below {2}

Variable Information

{0}: WSDL file name

{1}: Web service name

{2}: Directory name

Explanation

The web service WSDL file is not in the correct location.

System Action

Processing is interrupted.

User Action

Take the following actions:

1. If the web service application includes a WSDL file, then store the WSDL file in the following location:
 - For EJB modules and Java EE application clients: META-INF/wsdl.
 - For web modules: WEB-INF/wsdl.

2. Match the wsdlLocation definition in user applications and the <wsdl-file> definition in webservices.xml to the WSDL file in the action above.

ERROR: ISJEE_APPDEP2004: wsdl file {0} does not exist for web service {1}**Variable Information**

{0}: WSDL file name

{1}: Web service name (value of @WebService.name, or <webservice-description-name> of webservices.xml)

Explanation

A WSDL file could not be found for the web service.

System Action

Processing is interrupted.

User Action

If the web service application includes a WSDL file, then store the WSDL file in the following location:

- For EJB modules and Java EE application clients: META-INF/wsdl.
- For web modules: WEB-INF/wsdl.

If a WSDL file is not included in the web service application, do not specify the webservices.xml <wsdl-file> and the @WebService annotation wsdlLocation elements.

WARNING: ISJEE_APPDEP2005: handler class {0} specified in deployment descriptors**Variable Information**

{0}: handler class name

Explanation

The handler class specified in the deployment descriptor cannot be found.

System Action

Handler class {0} is ignored and processing is continued.

User Action

Check whether the handler class name specified in the deployment descriptor or the annotation is correct. Also, check whether the handler class exists.

13.5.3 APPDEP3000 to APPDEP3099

APPDEP3001: No bundle in application with uri {0}**Variable Information**

{0}: Value entered for <application><module><web><web-uri> in sun-application.xml

Explanation

The file entered for <application><module><web><web-uri> in sun-application.xml does not exist.

System Action

Processing is interrupted.

User Action

Check whether the file entered for <application><module><web><web-uri> in sun-application.xml exists, then execute the processing again.

APPDEP3002: {0} uri does not point to a web bundle

Variable Information

{0}: Value entered for <application><module><web><web-uri> in sun-application.xml

Explanation

A file other than a web application is entered for <application><module><web><web-uri> in sun-application.xml.

System Action

Processing is interrupted.

User Action

Enter a web application file for <application><module><web><web-uri> in sun-application.xml then execute the processing again.

APPDEP3003: No uri provided for this context-root {0}

Variable Information

{0}: Value entered for <application><module><web><context-root> in sun-application.xml

Explanation

In the sun-application.xml, <application><module><web><web-uri> was omitted in relation to the <context-root> that is output in the variable information, or a value was not entered.

System Action

Processing is interrupted.

User Action

Check the value entered for <application><module><web><web-uri> in sun-application.xml, then execute the processing again.

APPDEP3004: Unable to load service interface class {0}: deployment descriptor={1}

Variable Information

{0}: service interface class name

{1}: deployment descriptor file name

Explanation

The service interface class could not be loaded.

System Action

Processing is interrupted.

User Action

Check the following concerning the deployment descriptor output in the variable information or the service interface class name specified in the annotation and remove the cause of the error, then execute the processing again:

- Is the service interface class name incorrect?
- Does the service interface class exist?

APPDEP3005: Unable to load ejb class {0}: ejb-name={1}

Variable Information

{0}: EJB class name

{1}: Setting value for the ejb-name tag

Explanation

The EJB class could not be loaded.

System Action

Processing is interrupted.

User Action

Check the following concerning the deployment descriptor or the EJB class name specified in the annotation and remove the cause of the error, then execute the processing again.

- Is the EJB class name incorrect?
- Does the EJB class exist?

If the above does not apply, the JJSERVER cluster may not have been restarted after the required classpath was set in the application.

Refer to "[Chapter 7 List of Definition Items](#)" and check whether the JJSERVER cluster needs to be restarted.

APPDEP3006: Invalid value for a tag under param-name: handler-name={0} handler-class={1}

Variable Information

{0}: Setting value for the handler-name tag

{1}: Setting value for the handler-class tag

Explanation

An incorrect value is entered in `<service-ref><handler><init-param><param-name>` in the deployment descriptor included in the deployment target application.

System Action

Processing is interrupted.

User Action

Check the value entered in `<service-ref><handler><init-param><param-name>` in the deployment descriptor included in the deployment target application, then execute the processing again.

APPDEP3007: Invalid value for a tag under {0} : deployment descriptor={1}

Variable Information

{0}: Tag name

{1}: deployment descriptor file name

Explanation

There is an incorrect value entered in the deployment descriptor tag shown in the variable information.

System Action

Processing is interrupted.

User Action

Check the value entered in the deployment descriptor tag shown in the variable information, then execute the processing again.

APPDEP3008: Invalid value for a tag under ejb-name: ejb-name={0}

Variable Information

{0}: Setting value for the ejb-name tag

Explanation

The EJB application specified in <ejb-jar><relationships><ejb-relation><ejb-relationship-role><relationship-role-source><ejb-name> in ejb-jar.xml is not an entity bean application.

System Action

Processing is interrupted.

User Action

Specify an entity bean application in <ejb-jar><relationships><ejb-relation><ejb-relationship-role><relationship-role-source><ejb-name> in ejb-jar.xml, then execute the processing again.

APPDEP3009: Upload file failed: {0}

Variable Information

{0}: Error content

Explanation

File upload failed.

System Action

Processing is interrupted.

User Action

Take the following actions, then execute the processing again:

- If there is no free disk space, ensure there is ample free space.
- Access to a file or directory may have failed due to the disk being corrupted. Check the disk.

ERROR: ISJEE_APPDEP3010: file open failure: file = {0}: detail = {1}

Variable Information

{0}: file name

{1}: Error cause

Explanation

File open failed.

System Action

Processing is interrupted.

User Action

Check the access permission and the format of the file output in the variable information, then perform the processing again.

The applicable message may be output if the file output in the variable information is a large-scale file. If this is the case, split the file, then perform the processing again.

APPDEP3011: Deployment descriptor file {0} in archive [{1}]. {2}

Variable Information

{0}: deployment descriptor name

{1}: Application name

{2}: Detail information

Explanation

The deployment descriptor definition is incorrect.

System Action

Processing is continued, except for the application where the error occurred.

User Action

Refer to the content output as the variable information and correct the deployment descriptor definition, then redeploy the application where the error occurred.

WARNING: ISJEE_APPDEP3012: This web app [{0}] has no ejb reference by the name of [{1}]

Variable Information

{0}: Web application name or web application deployment descriptor output destination

{1}: Reference name of the EJB object that the web application is referencing

Explanation

The reference name of the EJB object that the web application is referencing does not exist.

System Action

Processing is continued.

User Action

Check whether the EJB object reference name output in the variable information exists and, if required, execute deployment again.

13.5.4 APPDEP4000 to APPDEP4099

APPDEP4001: Verifying: [{0}]

Variable Information

{0}: Application name or submodule name_extension

Explanation

The application is being verified.

APPDEP4002: Compiling JSPs in [{0}]

Variable Information

{0}: Application name or submodule name_extension

Explanation

JSP is being compiled.

APPDEP4003: No errors found in the archive.

Explanation

The application was verified and no errors were detected.

APPDEP4004: Look in file "{0}" for detailed results.

Variable Information

{0}: File name

Explanation

Refer to the file output in the variable information for detailed verification results.

User Action

If required, refer to the file output in the variable information and remove the cause of the error, and then execute the processing again.

APPDEP4005: Verifying results. {0}**Variable Information**

{0}: Detail information

Explanation

The verification results are output.

User Action

Refer to the information output in the variable information and, if required, remove the cause of the error, and then execute the processing again.

13.6 Messages that Contain "CLI" in the Message ID

13.6.1 CLI000 to CLI099

ERROR: ISJEE_CLI001: Invalid Command, {0}.**Variable Information**

{0}: Command name

Explanation

Command execution failed because the specified subcommand is either invalid or cannot be used in this edition.

System Action

Processing is interrupted.

User Action

Specify a valid subcommand, then execute the command again.

To use subcommands not provided in this edition, investigate purchasing a more recent edition.

ERROR: ISJEE_CLI010: Value not specified for {0}**Variable Information**

{0}: Option name

Explanation

Command execution failed because an option value was not specified.

System Action

Processing is interrupted.

User Action

Specify the correct option value, then execute the command again.

ERROR: ISJEE_CLI011: Invalid option, {0}**Variable Information**

{0}: Option name

Explanation

Command execution failed because an invalid option was specified.

System Action

Processing is interrupted.

User Action

Specify the correct option, then execute the command again.

If a user name starting with "-" is specified in the command options, specify the option value after "=".



Example

If the user name is "-a"

```
asadmin change-admin-password --user=-a
```

ERROR: ISJEE_CLI013: Option {0} does not apply to {1}.

Variable Information

{0}: Option name

{1}: Command name

Explanation

Command execution failed because an invalid option was specified.

System Action

Processing is interrupted.

User Action

Specify the correct option, then execute the command again.

ERROR: ISJEE_CLI014: {0} is a required option.

Variable Information

{0}: Option name

Explanation

Command execution failed because a mandatory option was not specified.

System Action

Processing is interrupted.

User Action

Specify the option indicated in the variable information, then execute the command again.

Solaris32/64 **Linux32/64**

If a string with blanks is specified for the command option, then either remove the blanks and execute the command again or use the -file option of the asadmin command multimode subcommand.

Refer to "[Specifying a Character String that Includes a Space](#)" for details.

ERROR: ISJEE_CLI015: Invalid value for {0}. Option accepts true or false.

Variable Information

{0}: Option name

Explanation

Command execution failed because the specified option value is invalid.

System Action

Processing is interrupted.

User Action

Specify the correct option value, then execute the command again.

ERROR: ISJEE_CLI016: Invalid number of operands. Number of operands should be 0 or 1.

Explanation

Command execution failed because an invalid number of operands were specified.

System Action

Processing is interrupted.

User Action

Specify one or no operands, then execute the command again.

CLI017: Invalid number of operands. Number of operands should be greater than 1.

Explanation

The command failed because the operand was not specified.

System Action

Processing is interrupted.

User Action

Specify a single or multiple operands, then reexecute the command.

ERROR: ISJEE_CLI019: Invalid number of operands. Number of operands should be equal to {0}.

Variable Information

{0}: Number of operands

Explanation

Command execution failed because an invalid number of operands were specified.

System Action

Processing is interrupted.

User Action

Solaris32/64 **Linux32/64**

If a string with blanks is specified for the command option, then either remove the blanks and execute the command again or use the -file option asadmin command multimode subcommand.

Refer to "[Specifying a Character String that Includes a Space](#)" for details.

ERROR: ISJEE_CLI020: Operand is required.

Explanation

Command execution failed because an operand was not specified.

System Action

Processing is interrupted.

User Action

Specify the operand then execute the command again.

13.6.2 CLI100 to CLI199

ERROR: ISJEE_CLI128: Password for {0} must have 8 or more characters.

Variable Information

{0}: Password type

- oldadminpassword: Password before change
- newadminpassword: Password after change

Explanation

The character string specified as the password is invalid.

System Action

Processing is interrupted.

User Action

For the administration password, specify a character string as follows:

- Number of characters: 8 to 20 characters
- Characters that can be specified: ASCII characters other than alphanumeric symbols (0x21-0x7e), blanks, and control codes

ERROR: ISJEE_CLI131: Invalid property syntax.

Explanation

Command execution failed because the format of the specified property is incorrect.

System Action

Processing is interrupted.

User Action

Correct the format of the property, then execute the command again.

ERROR: ISJEE_CLI134: Component name is null.

Explanation

A value is not specified for the name option.

System Action

Processing is interrupted.

User Action

Specify the application name in the name option, then execute the command again.

ERROR: ISJEE_CLI136: Port {0} should be a numeric value.

Variable Information

{0}: Specified port number

Explanation

The specified port number is incorrect.

System Action

Processing is interrupted.

User Action

Specify an integer value between 1 and 65535, then execute the command again.

ERROR: ISJEE_CLI137: Command {0} failed.

Variable Information

{0}: Sub command name

Explanation

Command execution failed.

System Action

Processing is interrupted.

User Action

Take the action advised in the message output at the same time, then execute the command again.

ERROR: ISJEE_CLI145: Could not set input stream.

Explanation

Command execution failed because the encoding option specification was incorrect or because read processing failed for the file specified in the file option.

System Action

Processing is interrupted.

User Action

Check the following and then execute the command again:

- Is the correct value specified in the encoding option?
 - Is the file specified in the file option readable?
-

ERROR: ISJEE_CLI146: {0} does not exist in the file system or read permission denied.

Variable Information

{0}: Option name

Explanation

Command execution failed because the file cannot be referenced.

System Action

Processing is interrupted.

User Action

Check whether the file shown in the variable information exists and its access permission, then execute the command again.

ERROR: ISJEE_CLI147: Invalid command, {0}

Variable Information

{0}: Command name

Explanation

Command execution failed because the specified subcommand is either invalid or cannot be used in this edition.

System Action

Processing is interrupted.

User Action

Specify a valid subcommand, then execute the command again.

To use subcommands not provided in this edition, investigate purchasing a more recent edition.

ERROR: ISJEE_CLI152: {0} is a required option.

Variable Information

{0}: Option name

Explanation

Command execution failed because a mandatory option was not specified.

System Action

Processing is interrupted.

User Action

Specify the option shown in the variable information, then execute the command again.

ERROR: ISJEE_CLI153: {0} does not exist or does not have write permission

Variable Information

{0}: Specified path

Explanation

The following are possible causes:

- The OS path length limit is exceeded.
- **Windows32/64**
A drive name that does not exist is included.

System Action

Processing is interrupted.

User Action

Check the file path output as the specified path in the variable information, then execute the command again.

WARNING: ISJEE_CLI153: {0} does not exist or does not have write permission

Variable Information

{0}: Specified path

Explanation

The following are possible causes:

- The OS path length limit is exceeded.
- **Windows32/64**
A drive name that does not exist is included.

System Action

Processing is continued.

User Action

Check the file path output as the specified path in the variable information, then execute the command again.

ERROR: ISJEE_CLI155: {0} does not exist.

Variable Information

{0}: Interstage Java EE DAS service name

Explanation

The Interstage Java EE DAS service definition file does not exist.

System Action

Processing is interrupted.

User Action

- A file system error may have occurred. Check for access problems to files in the Java EE common directory under the Interstage install directory.
- The Java EE install environment may be corrupted. If the Interstage Java EE DAS service definition file (domain.xml) does not exist, use the ijinit command to initialize the Java EE operating environment.

domain.xml storage destination

Windows32/64

```
[Java EE common directory]\domains\interstage\config\domain.xml
```

Solaris32/64 Linux32/64

```
[Java EE common directory]/domains/interstage/config/domain.xml
```

ERROR: ISJEE_CLI156: Could not start the domain {0}.

Variable Information

{0}: Interstage Java EE DAS service name

Explanation

Interstage Java EE DAS service startup failed.

System Action

Processing is interrupted.

User Action

Follow the action advised in messages output at the same time and remove the cause of the error, and then execute the command again.

ERROR: ISJEE_CLI165: Invalid type option value.

Explanation

The value specified in the type option is incorrect.

System Action

Processing is interrupted.

User Action

Specify the correct value in the type option, then execute the command again.

ERROR: ISJEE_CLI167: Could not create the following jvm options. Options exist: OPTIONS={0}

Variable Information

{0}: Specified JVM option

Explanation

Command execution failed because the specified JVM option is already defined.

System Action

Processing is interrupted.

User Action

Check the specified JVM option, then execute the command again. To update an already defined JVM option, use the asadmin command set subcommand.

ERROR: ISJEE_CLI168: Could not delete the following jvm options. Options do not exist: INVALID OPTIONS={0}

Variable Information

{0}: Specified JVM option (options are separated by colons)

Explanation

Command execution failed because the specified JVM option is not defined.

System Action

Processing is interrupted.

User Action

Define the specified JVM option, then execute the command again. To check an already defined JVM option, use the asadmin command get subcommand.

ERROR: ISJEE_CLI169: Options {0} and {1} are mutually exclusive. You must specify one or the other but not both.

Variable Information

{0}: Option name

{1}: Option name or operand

Explanation

Command execution failed because either both or none of {0} and {1} were specified.

System Action

Processing is interrupted.

User Action

Specify either {0} or {1}, then execute the command again.

ERROR: ISJEE_CLI170: Operand is required for option value {0}.

Variable Information

{0}: Option name

Explanation

The value specified in the option output in the variable information is incorrect.

System Action

Processing is interrupted.

User Action

Specify the correct value for the option output in the variable information, then execute the command again.

ERROR: ISJEE_CLI171: Command {0} failed : {1}

Variable Information

{0}: Sub command name

{1}: Error cause

Explanation

Execution failed for the command output as the subcommand name in the variable information.

System Action

Processing is interrupted.

User Action

Take the action advised in the message output as the error cause in the variable information, then execute the command again.

Note that if this error is issued when the deploy or undeploy subcommands are executed, application resources may remain. For details, refer to "[1.3.4 Notes About Deployment](#)" > "[Notes About Deployment Errors](#)" > "[Residual Application Resources](#)".

ERROR: ISJEE_CLI172: There is a problem with the value given for option: --{0}.

Variable Information

{0}: Option name

Explanation

The value specified for the option output in the variable information is incorrect.

System Action

Processing is interrupted.

User Action

Specify the correct value for the option output in the variable information, then execute the command again.

ERROR: ISJEE_CLI173: Values entered for {0} do not match.

Variable Information

{0}: Password identifier

Explanation

Command execution failed because the new password entered when reentry was requested does not match.

System Action

Processing is interrupted.

User Action

Execute the command again and enter the same password when reentry is requested.

ERROR: ISJEE_CLI175: The target {0} is invalid. Valid target types are cluster, domain, unclustered server instance, domain administration server.

Variable Information

{0}: Target

Explanation

The specified target is invalid.

System Action

Processing is interrupted.

User Action

Specify a valid target, then execute the command again.

ERROR: ISJEE_CLI186: Invalid format entered for the webservice name. Valid format for an endpoint in an application is <app-name>#<module-name>#<endpoint-name>. Valid format for an endpoint in a deployed standalone module is <module-name>#<endpoint-name>.

Explanation

The web service specification format is incorrect.

System Action

Processing is interrupted.

User Action

Specify the web service using the correct specification format (for details, refer to "[10.1 asadmin](#)" > "[10.1.12 Subcommands - Category: Web service](#)").

ERROR: ISJEE_CLI187: Application by name {0} is not found

Variable Information

{0}: Specified character string

Explanation

The character string specified as the web service is invalid.

System Action

Processing is interrupted.

User Action

Specify the correct character string. 'asadmin list-components --type webservice' can be used to refer to a list of the character strings that express the deployed web services.

ERROR: ISJEE_CLI189: Standalone Module by name {0} is not found

Variable Information

{0}: Specified character string

Explanation

The character string specified as the web service is invalid.

System Action

Processing is interrupted.

User Action

Specify the correct character string. 'asadmin list-components --type webservice' can be used to refer to a list of the character strings that express the deployed web services.

ERROR: ISJEE_CLI192: Value specified for webservice name {0} is not valid. Please check the module name and webservice endpoint name entered. Use 'list-components --type webservice' to get the list of web service end point names.

Variable Information

{0}: Specified character string

Explanation

The character string specified as the web service is invalid.

System Action

Processing is interrupted.

User Action

Specify the correct character string. 'asadmin list-components --type webservice' can be used to refer to a list of the character strings that express the deployed web services.

ERROR: ISJEE_CLI193: Password option "{0}" is not allowed on the command line. Please use --passwordfile option or asadmin login command.

Variable Information

{0}: Option name

Explanation

Command execution failed because a password file was not specified.

System Action

Processing is interrupted.

User Action

Specify the --passwordfile option, then execute the command again.

ERROR: ISJEE_CLI194: The target {0} is invalid. Valid target types are cluster, domain administration server.

Variable Information

{0}: Target

Explanation

The specified target is invalid.

System Action

Processing is interrupted.

User Action

Specify a valid target, then execute the command again.

13.6.3 CLI300 to CLI399

INFO: ISJEE_CLI301: The cluster does not exist.

Explanation

The IIServer cluster does not exist.

ERROR: ISJEE_CLI302: The cluster does not exist. NAME={0}

Variable Information

{0}: IIServer cluster name

Explanation

The specified IIServer cluster does not exist.

System Action

Processing is interrupted.

User Action

Specify the correct IIServer cluster name, then execute the command again.

ERROR: ISJEE_CLI303: The specified file is not a directory. FILE NAME={0}

Variable Information

{0}: file name

Explanation

The specified file name is not a directory.

System Action

Processing is interrupted.

User Action

Specify an existing directory in the file name, then execute the command again.

ERROR: ISJEE_CLI304: An error occurred when writing file. FILE NAME={0} INFO={1}

Variable Information

{0}: file name

{1}: Detail information

Explanation

An error occurred during file output.

System Action

Processing is interrupted.

User Action

Refer to the message output at the same time and fix the cause of the error, then execute the processing again.

ERROR: ISJEE_CLI305: --file and property cannot be set at the same time.

Explanation

Command execution failed because the file option and operand were specified concurrently.

System Action

Processing is interrupted.

User Action

Specify either the file option or the operand, then execute the command again.

ERROR: ISJEE_CLI306: --file or property must be set.

Explanation

Command execution failed because neither the file option nor the operand was specified.

System Action

Processing is interrupted.

User Action

Specify either the file option or the operand, then execute the command again.

ERROR: ISJEE_CLI307: The specified name is invalid. NAME={0}

Variable Information

{0}: Specified operation target

Explanation

Command execution failed because the specified operation target is incorrect.

System Action

Processing is interrupted.

User Action

The following values can be specified as the operation target:

- interstage: Interstage Java EE DAS service
- ijna: Interstage Java EE Node Agent service

Specify the correct operation target, then execute the command again.

INFO: ISJEE_CLI308: All Tests Passed, domain.xml is valid.

Explanation

domain.xml validation succeeded.

ERROR: ISJEE_CLI309: Failed to parse domain.xml. FILE={0} ERROR={1}

Variable Information

{0}: File name

{1}: error information

Explanation

domain.xml analysis failed.

System Action

Processing is interrupted.

User Action

Refer to the detailed information shown at error information {1} and correct the definition file, then execute the command again.

ERROR: ISJEE_CLI310: Tests Failed, domain.xml is invalid. FILE={0}

Variable Information

{0}: File name

Explanation

Validation failed because the definition content for domain.xml is incorrect.

System Action

Processing is interrupted.

User Action

Refer to the error information output immediately after this message and correct the definition file, then execute the command again.

ERROR: ISJEE_CLI311: Invalid encoding specified, {0}. Valid encodings are: "UTF-8", "SJIS" and "EUC".

Variable Information

{0}: Specified encoding

Explanation

Command execution failed because the specified encoding is not supported.

System Action

Processing is interrupted.

User Action

Specify one of the following encodings, then execute the command again:

- UTF-8
- SJIS
- EUC

ERROR: ISJEE_CLI312: Unable to start database. Please check log in {0}.

Variable Information

{0}: Directory

Explanation

Database activation failed.

System Action

Processing is interrupted.

User Action

Error information is output in the log under the directory shown in the variable information. Refer to the log file and fix the error.

ERROR: ISJEE_CLI313: No matches resulted from the wildcard expression.

Explanation

No definition items that match the specified operand were found.

System Action

Processing is interrupted.

User Action

Check whether the specified operand is entered correctly, then execute the operation again.

ERROR: ISJEE_CLI314: Incorrect admin username and/or password.**Explanation**

The administrator user ID, the password, or both are incorrect.

System Action

Processing is interrupted.

User Action

Check the following for the specified administrator user:

- Is it registered in admin-realm? (*1)
- Does it belong to the asadmin group? (*1)
- Are the ID and password correct?

*1 Check using the following from the Interstage Java EE Admin Console:

```
Settings> server-config> Security> Realm> admin-realm
```

After checking, execute the command again.

If the above does not solve the problem, also refer to "[14.2.9 When a Message is Output Stating that Authentication has Failed](#)".

ERROR: ISJEE_CLI315: Incorrect service admin username and/or password.**Explanation**

The service administrator user ID, the password, or both are incorrect.

System Action

Processing is interrupted.

User Action

Check the following for the specified administrator user:

- Is it registered in admin-realm? (*1)
- Does it belong to the asadmin group? (*1)
- Are the ID and password correct?

*1 Check using the following from the Interstage Java EE Admin Console:

```
Settings> server-config> Security> Realm> admin-realm
```

After checking, execute the command again.

If the above does not solve the problem, also refer to "[14.2.9 When a Message is Output Stating that Authentication has Failed](#)".

INFO: ISJEE_CLI316: An entry for login exists for host [{0}] and port [{1}], probably from an earlier login operation.

Do you want to overwrite this entry (y/n)?

Variable Information

{0}: Host name

{1}: Port name

Explanation

A file that has saved the login information already exists.

System Action

If "y" is entered, then the file where the login information is saved is overwritten.

If "n" is entered, then processing is interrupted.

User Action

Enter "y" to overwrite the file, or "n" to interrupt processing.

**INFO: ISJEE_CLI317: Login information relevant to admin user name [{0}] for host [{1}] and admin port [{2}] stored at [{3}] successfully.
Make sure that this file remains protected. Information stored in this file will be used by asadmin commands to manage associated domain.**

Variable Information

{0}: Administrator user name

{1}: Host name

{2}: Port name

{3}: File name

Explanation

The administrator user's login information has been saved to file.

Manage this file carefully, because this information is used for administration user authentication.

INFO: ISJEE_CLI318: Login information is not saved for host name [{0}] and port [{1}]

Variable Information

{0}: Host name

{1}: Port name

Explanation

Login information was not saved.

System Action

Processing is interrupted.

INFO: ISJEE_CLI319: Trying to authenticate for administration of server at host [{0}] and port [{1}] ...

Variable Information

{0}: Host name

{1}: Port name

Explanation

Authentication processing is being performed in relation to the Interstage Java EE DAS service.

WARNING: ISJEE_CLI320: Login information could not be read for host name [{0}] and port [{1}]

Variable Information

{0}: Host name

{1}: Port name

Explanation

Read failed for the file where the login information was stored.

System Action

Processing is interrupted.

User Action

Execute the login subcommand then execute the command again.

ERROR: ISJEE_CLI321: File output error. detail={0}

Variable Information

{0}: Detailed information

Explanation

Writing to the file failed.

System Action

Processing is interrupted.

User Action

Refer to the detailed information at {0} and fix the cause of the error, then execute the command again.

ERROR: ISJEE_CLI322: File {0} not found.

Variable Information

{0}: File name

Explanation

The file does not exist.

System Action

Processing is interrupted.

User Action

The following are possible reasons for the file not existing:

- The file was deleted.
- An error occurred when referencing a shared disk.

Check if the file at {0} exists and recover to the state in which it can be referenced. If recovery is not possible, then use the `iscollectinfo` command to collect investigation information and contact your service engineer.

This message may be output when a command is executed after the `ijinit` command failed to initialize the Java EE operating environment. In this case, remove the cause of the initialization failure and execute the `ijinit` command again. Note that this message may be output again when the `ijinit` command is reexecuted, but the message can be ignored.

If cluster service linkage exists and a Java EE common directory is created in a shared disk, the command may have been executed at a standby node. If so, execute the command at an active node.

WARNING: ISJEE_CLI323: The service admin user's password has been changed.

Explanation

The service admin user password has been changed.

System Action

Processing is continued.

User Action

Execute the `asadmin change-service-adminuser` command and reset the service admin user ID and password. After resetting, restart the following services:

- Interstage Java EE DAS service

- Interstage Java EE Node Agent service

WARNING: ISJEE_CLI324: Operand target is deprecated.

Explanation

A non-recommended operand was specified.

System Action

Processing is continued.

User Action

The specified operand is ignored and processing is continued. No action is required.

WARNING: ISJEE_CLI325: Option {0} deprecated.

Variable Information

{0}: Option name

Explanation

A non-recommended option was specified.

System Action

Processing is continued.

User Action

The specified option is ignored and processing is continued. No action is required.

WARNING: ISJEE_CLI326: Option {0} deprecated, use --{1} instead.

Variable Information

{0}: Non-recommended option name

{1}: Recommended option name

Explanation

A non-recommended option was specified.

System Action

The non-recommended option is replaced with a recommended option and processing is continued.

User Action

No action is required.

However, use the recommended option rather than the non-recommended option.

ERROR: ISJEE_CLI327: The target is invalid.

Explanation

The specified target is incorrect.

System Action

Processing is interrupted.

User Action

Check the following:

- Check whether the name specified as the target is correct.

- Check whether an IJServer cluster name was accidentally specified in a command that specifies a server instance name as the target.
- Check whether the target is started.

ERROR: ISJEE_CLI328: The ConnectorConnectionPool name {0} does not exist. Please give a valid pool name.

Variable Information

{0}: Pool name of the connector connection pool

Explanation

The pool name of a connector connection pool that does not exist was specified.

System Action

Processing is interrupted.

User Action

Specify the pool name of the correct connector connection pool and then execute the processing again.

ERROR: ISJEE_CLI329: Invalid JVM options are detected. Initial JVM options also must be specified. OPTIONS={0}

Variable Information

{0}: Options values

Explanation

Invalid JVM options were specified. The JVM options defined as the default options must also be specified.

System Action

Processing is interrupted.

User Action

Execute the "asadmin get" command and specify the predefined JVM options (for details, refer to "10.1 asadmin" > "10.1.4.1 get Subcommand").

Check which JVM options are defined as the default options from the default settings (default-config) JVM option definition items.

WARNING: ISJEE_CLI330: Simple login information could not be read for host name [{0}] and port [{1}].

Variable Information

{0}: Host name

{1}: Port name

Explanation

Failed to read the authentication file.

System Action

Processing is interrupted.

User Action

Ensure that the authentication file exists and that the user has access permission to it

 Windows32/64

```
[Java EE common directory]\.osrealm_user_passfile
```

```
[Java EE common directory]/.osrealm_user_passfile
```

WARNING: ISJEE_CLI331: The IP address for host name [{0}] could not be determined.

Variable Information

{0}: Host name

Explanation

The host IP address cannot be determined.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Ensure that the specified host is valid.
- Check whether there is an abnormality in the network environment.

ERROR: ISJEE_CLI332: The service admin user is null.

Explanation

The service admin user cannot be displayed because it has not been set.

System Action

Processing is interrupted.

User Action

Use the "asadmin change-service-adminuser" command to set the service admin user (for details, refer to "[10.1 asadmin](#)" > "[10.1.19.2 change-service-adminuser Subcommand](#)").

Note that this is not necessary if the Java EE operating environment authentication realm is operating system realm.

13.6.4 CLI400 to CLI499

WARNING: ISJEE_CLI416: Continuing to start database

Explanation

Java DB start processing is continued.

System Action

Command processing is continued.

User Action

If the Java DB fails to start after this message is output, then refer to the message output immediately prior this one and fix the cause of the error and execute Java DB start again.

ERROR: ISJEE_CLI417: Error occurred while processing the dotted name.

Explanation

An error occurred during an operation for the specified definition item.

System Action

Processing is interrupted.

User Action

Follow the action advised in the message output immediately prior and fix the cause of the error, then execute the command again.

13.7 Messages that Contain "CORE" in the Message ID

13.7.1 CORE5000 to CORE5099

WARNING: ISJEE_CORE5001: Exception

Explanation

An error occurred in internal processing.

System Action

Processing is continued.

User Action

Take action according to the message output at the same time.

INFO: ISJEE_CORE5002: [{0}] reloaded successfully!

Variable Information

{0}: Application

Explanation

Application auto-reload succeeded.

INFO: ISJEE_CORE5003: [{0}] failed to reload!

Variable Information

{0}: Application

Explanation

Application auto-reload failed.

User Action

Refer to the message output immediately before this one and take action.

INFO: ISJEE_CORE5004: Resource Deployed: [{0}].

Variable Information

{0}: Resource type internal information : resource name

Explanation

The resource is deployed.

ERROR: ISJEE_CORE5005: Error in resource deploy.

Explanation

An error occurred during resource deployment.

System Action

Processing is continued.

User Action

Refer to the stack trace output after this message or in the message output before or after this message and fix the cause of the error.

INFO: ISJEE_CORE5006: Resource UnDeployed: [{0}].

Variable Information

{0}: Resource type internal information : resource name

Explanation

The resource is undeployed.

ERROR: ISJEE_CORE5007: Error in resource un-deploy.

Explanation

An error occurred during resource undeployment.

System Action

Processing is continued.

User Action

Refer to the stack trace output after this message or in the message output before or after this message and fix the cause of the error.

INFO: ISJEE_CORE5008: Resource Redeployed: [{0}].

Variable Information

{0}: Resource type internal information : resource name

Explanation

The resource was redeployed.

ERROR: ISJEE_CORE5009: Error in resource re-deploy.

Explanation

An error occurred during resource redeployment.

System Action

Processing is continued.

User Action

Refer to the stack trace output after this message and to the messages output before or after this message and remove the cause of the error.

INFO: ISJEE_CORE5010: Resource Enabled: [{0}].

Variable Information

{0}: Resource type internal information : resource name

Explanation

The resource can be used (is enabled).

INFO: ISJEE_CORE5012: Resource Disabled: [{0}].

Variable Information

{0}: Resource type internal information : resource name

Explanation

The resource cannot be used (is disabled).

ISJEE_CORE5016: Unexpected error occurred while loading applications

Explanation

An unexpected error occurred during application load.

System Action

Application loading is interrupted and processing is continued.

User Action

Refer to the stack trace output after this message or in the message output before or after this message and fix the cause of the error.

WARNING: ISJEE_CORE5020: Error while loading ejb module

Explanation

EJB application load failed.

System Action

EJB application loading is interrupted and processing is continued.

User Action

Refer to the error message output prior to this message and fix the cause of the error, then execute the processing again.

WARNING: ISJEE_CORE5021: Application NOT loaded: [{0}]

Variable Information

{0}: Application name

Explanation

Application load failed.

System Action

Application loading is interrupted and processing is continued.

User Action

- Refer to the error message output prior to this message and fix the cause of the error, then execute the processing again.
 - Referencing a resource may have failed during application deployment or during IJServer activation. If a resource referenced by the application is not defined in the IJServer cluster, then define the resource and restart the IJServer cluster.
-

INFO: ISJEE_CORE5022: All ejb(s) of [{0}] were unloaded successfully!

Variable Information

{0}: Application name

Explanation

The EJB application was stopped normally.

INFO: ISJEE_CORE5023: Error while unloading application [{0}]

Variable Information

{0}: Application name

Explanation

An error occurred while unloading the application.

INFO: ISJEE_CORE5024: EJB module [{0}] unloaded successfully!

Variable Information

{0}: EJB application name

Explanation

Unloading the EJB application succeeded.

INFO: ISJEE_CORE5042: Resource Undeployed: [{0}]. Server restart needed.

Variable Information

{0}: Resource type internal information : resource name

Explanation

The resource is undeployed.

INFO: ISJEE_CORE5043: Resource Redeployed: [{0}]. Server restart needed.

Variable Information

{0}: Resource type internal information : resource name

Explanation

The resource was redeployed.

INFO: ISJEE_CORE5044: Resource Enabled: [{0}]. Server restart needed.

Variable Information

{0}: Resource type internal information : resource name

Explanation

The resource can be used (is enabled).

INFO: ISJEE_CORE5045: Resource Disabled: [{0}]. Server restart needed.

Variable Information

{0}: Resource type internal information : resource name

Explanation

The resource cannot be used (is disabled).

INFO: ISJEE_CORE5051: Shutting down all J2EE applications ...

Explanation

The application is stopping.

INFO: ISJEE_CORE5052: Application shutdown complete.

Explanation

Stopping the application is completed.

ERROR: ISJEE_CORE5055: No such resource {0}

Variable Information

{0}: JNDI name

Explanation

The resource was not found.

System Action

Processing is continued.

User Action

Refer to the exception message output either immediately before or immediately after this message and remove the cause of the error, and then execute the processing again.

ERROR: ISJEE_CORE5059: Error in loading resource

Explanation

An error occurred while loading the resource.

System Action

Processing is continued.

User Action

Refer to the exception message output either immediately prior or immediately after this message and fix the cause of the error, then execute the processing again.

WARNING: ISJEE_CORE5060: IOException :

Explanation

Class loader initialization failed.

User Action

Refer to the exception message output either immediately prior or immediately after this message and fix the cause of the error, then execute the processing again.

INFO: ISJEE_CORE5061: Resource adapters Stop() Complete

Explanation

Stopping of the resource adapter is completed.

INFO: ISJEE_CORE5068: Stopping all J2EE Connector 1.5 Compliant resource adapters ...

Explanation

A resource adapter that conforms to Java EE Connector Architecture 1.5 conventions is being stopped.

ERROR: ISJEE_CORE5069: Error occurred while loading system applications {0}

Variable Information

{0}: Exception stack trace

Explanation

Read processing failed for an application used by the system.

System Action

Processing is interrupted.

User Action

Refer to the error message output prior to this message and take any required action. If the error cannot be identified from the error messages that are output, execute `iscollectinfo` to collect troubleshooting data and contact your service engineer.

ERROR: CORE5071: An error occurred during initialization

Explanation

IJServer cluster initialization failed.

System Action

IJServer cluster initialization is interrupted.

User Action

Refer to the exception message output either immediately before or immediately after this message:

- If "ServerLifecycleException: For input string:" was output:

Review the value specified for the RMI registry connection port used by the JMX connector (for details on the valid values, refer to "[7.8 Operating Environment-related Definition Items](#)" > "[7.8.1 Properties Used when Creating and Updating Definitions](#)" > "System property" > "JMX_SYSTEM_CONNECTOR_PORT").

- If "Cannot bind to URL ~ Connection refused: connect ~" is output to the exception information, the IP address of the local host set in the hosts file may be incorrect. Set the correct value in the hosts file, and then reexecute the operation.

- If "Listen failed on port: Address already in use: JVM_Bind" was output:

Review the port number - it may already be in use by another service or application in the system.

INFO: ISJEE_CORE5076: Using [{0}] from [{1}]

Variable Information

{0}: Version

{1}: Vendor

Explanation

The Java VM supplied by the vendor output in the variable information is being used.

CORE5081: Exception while creating ORB: [{0}]

Variable Information

{0}: Detail information

Explanation

An error occurred during IIOP listener initialization.

System Action

Server instance startup is stopped.

User Action

Refer to the detail information and to error messages output before and after this message and take any required action.

If the message "Unable to create ORB" is output after this message, the IIOP listener port may be in an unusable state for the following reason:

- The port is being used by another service or process.

Check whether another service or process is using the relevant port. Or, refer to "[6.13 Port Tuning](#)" and check whether the appropriate port number is set.

CORE5082: Exception running j2ee services: [{0}]

Variable Information

{0}: Detail information

Explanation

An error occurred during IJServer cluster initialization.

System Action

IJServer cluster activation is interrupted.

User Action

Follow the action advised in the detailed information and in the error message output prior to or after this message.

13.7.2 CORE5100 to CORE5199

WARNING: ISJEE_CORE5120: Exception :{0}

Variable Information

{0}: Detail information

Explanation

An exception occurred during container initialization processing or termination processing.

System Action

Processing is continued.

User Action

If an error message was output prior to this message, then follow the action advised in that message.

13.7.3 CORE5300 to CORE5399

WARNING: ISJEE_CORE5300: Failed to load deployment descriptor files from directory: {0}. Load them from directory : {1} instead.

Variable Information

{0}: Path for which read failed

{1}: Alternate path

Explanation

An error occurred while reading the deployment descriptor. Change the read destination path.

System Action

The deployment descriptor set in the alternate path is loaded.

User Action

If an error message was output after this message, then refer to that message.

WARNING: ISJEE_CORE5301: Error occurred while creating jsr77 root mbean.

Explanation

MBean creation failed.

System Action

EJB application loading is interrupted and processing is continued.

User Action

Follow the action advised in the error message output prior to this message and remove the cause of the error, and then execute the processing again.

WARNING: ISJEE_CORE5302: Error occurred while deleting jsr77 root mbean.

Explanation

MBean deletion failed.

System Action

EJB application loading is interrupted and processing is continued.

User Action

Follow the action advised in the error message output prior to this message and remove the cause of the error, and then execute the processing again.

13.8 Messages that Contain "DPL" in the Message ID

13.8.1 DPL5000 to DPL5099

WARNING: ISJEE_DPL5034:Rollback failed

Explanation

Rollback failed.

System Action

Processing is continued.

User Action

Refer to the message output at the same time, then take action if necessary.

13.8.2 DPL5300 to DPL5399

INFO: ISJEE_DPL5306: {0} Web Service Endpoint [{1}] listening at address [{2}]

Variable Information

{0}: Servlet or EJB
{1}: Endpoint name
{2}: Part under the context root of the endpoint address

Explanation

The web service endpoint was deployed.

13.8.3 DPL8000 to DPL8099

DPL8001: descriptor failure {0}

Variable Information

{0}: Detail information

Explanation

The deployment descriptor is incorrect.

System Action

Processing is interrupted.

User Action

The deployment descriptor file name may not match the content.

Check for mistakes, then execute the processing again.

ERROR: ISJEE_DPL8005: Deployment Descriptor parsing failure : {0}

Variable Information

{0}: Detail information

Explanation

Deployment descriptor analysis failed.

System Action

Processing is continued. Note that processing may be interrupted by the content of the deployment descriptor.

User Action

Refer to the detailed information and the error output prior to or after this message and check for mistakes in the deployment descriptor.

DPL8006: get/add descriptor failure : {0} TO {1}

Variable Information

{0}: Element name

{1}: Value

Explanation

There may be a mistake in the deployment descriptor.

System Action

Processing is continued. Note that processing may be interrupted by the content of the deployment descriptor.

User Action

Refer to the variable information and check for mistakes in the deployment descriptor, then execute the processing again, if required.

DPL8007: Invalid Deployment Descriptors element {0} value {1}

Variable Information

{0}: Element name

{1}: Value

Explanation

An invalid value is specified in the deployment descriptor.

System Action

Processing is interrupted.

User Action

Refer to the variable information and check for mistakes in the deployment descriptor, then execute the processing again.

ERROR: ISJEE_DPL8008: method/class loading failure : method/class name - {0}

Variable Information

{0}: Analysis information

Explanation

Load failed for the specified method or class.

System Action

The method or class for which load failed is interrupted and processing is continued.

User Action

Add the method or class for which load failed to the application or class path then redeploy.

If this does not solve the problem, then restart the IJServer cluster.

For details on how to set the class path, refer to "[2.23 Class Loader](#)".

DPL8011: autodeployment failure while deploying the application : {0}

Variable Information

{0}: Detail information

Explanation

Deployment of the system application used by Interstage Java EE failed.

Alternatively, deployment of the application during auto-reload failed. (*1)

System Action

Processing is continued.

User Action

Refer to the message output at the same time as this message and fix the cause of the error, then restart the following services: (*2)

- Interstage Java EE DAS service
- Interstage Java EE Node Agent service

If auto-reload failed, refer to the error message output at the same time as this one and remove the cause of the error, and then reexecute auto-reload.

*1 ISJEE_CORE5003 is output after this message when auto-reload fails.

*2 This operation is not necessary when auto-reload fails.

ERROR: ISJEE_DPL8015: Invalid Deployment Descriptors in Deployment descriptor file {0} in archive [{1}]. Line {2} Column {3} -- {4}

Variable Information

{0}: deployment descriptor name

{1}: Application name

{2}: Line number where the error occurred

{3}: Column number where the error occurred

{4}: Detail information

Explanation

The deployment descriptor definition is incorrect.

System Action

Processing is continued, except for the application where the error occurred.

User Action

Refer to the content output in the variable information and correct the deployment descriptor definition, then redeploy the application where the error occurred.

Additionally, if {2} and {3} are -1, then an unsupported definition may have been defined in the deployment descriptor. Review the deployment descriptor definition.

13.9 Messages that Contain "DTX" in the Message ID

13.9.1 DTX5000 to DTX5099

ERROR: ISJEE_DTX5001:Exception in enlistComponentResources.

Explanation

An error occurred during resource transaction registration.

System Action

Returns an exception to the application.

User Action

Check whether the resource is used correctly. If the problem persists, then use the `iscollectinfo` command to collect investigation information and contact your service engineer.

ERROR: ISJEE_DTX5002:Exception in delistComponentResources.

Explanation

An error occurred in processing for de-registering of the resource transaction.

System Action

Returns an exception to the application.

User Action

Check whether the resource is used correctly. If the problem persists, then use the `iscollectinfo` command to collect investigation information and contact your service engineer.

ERROR: ISJEE_DTX5003:RollbackException in registerSynchronization.

Explanation

A `RollbackException` occurred during transaction registration for a synchronization object.

System Action

Returns an exception to the application.

User Action

Use the `iscollectinfo` command to collect investigation information and contact your service engineer.

ERROR: ISJEE_DTX5004:RemoteException in UserTx.begin().

Explanation

A `RemoteException` occurred during execution of `UserTransaction.begin`.

System Action

Returns an exception to the application.

User Action

Check for mistakes in the `UserTransaction` method of use. If the problem persists, then use the `iscollectinfo` command to collect investigation information and contact your service engineer.

ERROR: ISJEE_DTX5005:RemoteException in UserTx.commit().**Explanation**

A RemoteException occurred during execution of UserTransaction.commit.

System Action

Returns an exception to the application.

User Action

Check for mistakes in the UserTransaction method of use. If the problem persists, then use the iscollectinfo command to collect investigation information and contact your service engineer.

ERROR: ISJEE_DTX5006:RemoteException in UserTx.rollback().**Explanation**

A RemoteException occurred during execution of UserTransaction.rollback.

System Action

Returns an exception to the application.

User Action

Check for mistakes in the UserTransaction method of use. If the problem persists, then use the iscollectinfo command to collect investigation information and contact your service engineer.

WARNING: ISJEE_DTX5007:Exception :**Explanation**

An error occurred during transaction completion processing.

System Action

Processing is continued.

User Action

Refer to the stack trace output after this message and to the messages output before or after this message and remove the cause of the error.

ERROR: ISJEE_DTX5008: Pooling Exception:**Explanation**

An error occurred while closing the connection.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately below this message and fix the cause of the error.

WARNING: ISJEE_DTX5009:Reconfiguration of transaction timeout failed**Explanation**

An error occurred while setting the transaction timeout value.

System Action

The transaction timeout value is not updated.

User Action

Set again using the correct value.

WARNING: ISJEE_DTX5010:An exception occurred while JTAStats monitoring registration

Explanation

An error occurred while registering a monitor information object for transactions.

System Action

Processing is continued. Transaction monitor information cannot be fetched.

User Action

Use the `iscollectinfo` command to collect investigation information and contact your service engineer.

WARNING: ISJEE_DTX5011:Error occurred while getting monitor attribute

Explanation

An error occurred while fetching transaction monitor information.

System Action

Processing is continued. Transaction monitor information cannot be fetched.

User Action

Use the `iscollectinfo` command to collect investigation information and contact your service engineer.

WARNING: ISJEE_DTX5012:ClassNotFoundException occurred while creating JTAStats

Explanation

A `ClassNotFoundException` occurred while creating a monitor information object for transactions.

System Action

Processing is continued. Transaction monitor information cannot be fetched.

User Action

Use the `iscollectinfo` command to collect investigation information and contact your service engineer.

ERROR: ISJEE_DTX5014:Error occurred while committing transaction. Id[{0}] Error[{1}]

Variable Information

{0}: Transaction ID
{1}: Exception information

Explanation

An error occurred during transaction commit processing.

System Action

Returns an exception to the application.

User Action

Refer to the exception information output prior to and after this message and in the exception information output at {1} and fix the cause of the error, then execute the application again.

If a global transaction is being used, an in-doubt transaction may have occurred. Use the `asadmin` command or the Interstage Java EE Admin Console to perform transaction recovery processing.

Alternatively, note the transaction ID output at {0} and perform the transaction recovery processing from the resource manager side.

ERROR: ISJEE_DTX5015:Error occurred while rolling back transaction. Id[{0}] Error[{1}]**Variable Information**

{0}: Transaction ID
{1}: Exception information

Explanation

An error occurred during transaction rollback processing.

System Action

Returns an exception to the application.

User Action

Refer to the exception information output prior to and after this message and in the exception information output at {1} and fix the cause of the error, then execute the application again.

If a global transaction is being used, an in-doubt transaction may have occurred. Use the asadmin command or the Interstage Java EE Admin Console to perform transaction recovery processing.

Alternatively, note the transaction ID output at {0} and perform the transaction recovery processing from the resource manager side.

13.10 Messages that Contain "EEADM" in the Message ID

13.10.1 EEADM0000 to EEADM0099

EEADM0002: An exception occurred starting the server instance {0}.**Variable Information**

{0}: server instance name

Explanation

An error occurred during the server instance start operation.

System Action

Start processing is interrupted.

User Action

Refer to the following log files and investigate the cause of the error:

- system log/event log
- IJServer cluster server log/Java VM log
- Interstage Java EE DAS service server log
- Interstage Java EE Node Agent service server log

EEADM0003: An exception occurred stopping the server instance {0}.**Variable Information**

{0}: server instance name

Explanation

An error occurred during the server instance stop operation.

System Action

Processing is continued.

User Action

Refer to the following log files and investigate the cause of the error:

- system log/event log
- IJServer cluster server log/Java VM log

EEADM0005: An exception occurred listing server instances with target {0}.

Variable Information

{0}: server instance name

Explanation

Failed to fetch the server instance status.

System Action

Processing is continued.

User Action

Communication with the server instance may have failed due to a high load. Alternatively, another user may be executing IJServer cluster operations.

Wait a while then execute the operation again.

EEADM0014: An exception occurred listing clusters with target {0}.

Variable Information

{0}: Target name (*1)

*1 If the operation that obtains the IJServer cluster status was performed without specifying its name, then {0} will be "null".

Explanation

Failed to obtain the IJServer cluster status.

System Action

Processing is interrupted.

User Action

Refer to the manual for the description of the message output after this one, then take action.

EEADM0039: Not responding: {0}

Variable Information

{0}: Connection destination URL

Explanation

A timeout occurred while connecting to the JMX connector.

System Action

Processing is interrupted.

User Action

Check the operation status of the process that starts the JMX connector that is displayed as the connection destination URL.

If this message is output when the system load is low, revise the TCP/IP timeout and retry settings.

If cluster service linkage exists and a Java EE common directory is stored on a shared disk, this message may have been output when the operation was executed at a standby node. If so, execute the operation at an active node.

EEADM0068: Instance {0} is not reachable.**Variable Information**

{0}: server instance name

Explanation

Failed to send the event to the instance.

System Action

Processing is continued.

User Action

The server instance may be stopped.

If this message is output during deployment or undeployment, then the server instance information may not have been updated. However, no action is required because the information is updated by means of repository synchronization during the next startup. Check the message output before or after this one.

ERROR: EEADM0069: Error while sending event to remote instance. {0}**Variable Information**

{0}: Stack trace containing the exception information

Explanation

An error occurred while sending an event to the instance.

System Action

Processing is interrupted.

User Action

Follow the action advised in the exception information output in the variable information.

Connection with the instance may have failed due to a high load. If the system load is high, then wait for a few moments, then execute the operation again.

EEADM0079: Target information could not be determined for the following configuration change (XPath is [{0}]). Restart required status is not updated.**Variable Information**

{0}: Detail information

Explanation

An error occurred while sending an event to an instance.

System Action

Processing is interrupted.

User Action

Refer to the exception information that is output in the variable information and take any required action.

Note that the connection to the instance may have failed as a result of a high load. If the system load is high, wait a while and then execute the operation again.

13.10.2 EEADM0300 to EEADM0399

INFO: ISJEE_EEADM0300: The associated Domain Admin Server is not running and hence this server instance can not cascade the Runtime MBeans to it.

Explanation

Interstage Java EE DAS service was not started. Therefore, the runtime MBean information was not transferred to the GUI process.

EEADM0302:Connection exception while connecting to server {0}, MBeans from server instance {0} cannot be cascaded

Variable Information

{0}: server instance name

Explanation

Connection to the server instance failed.

System Action

Processing is continued.

User Action

If the server instance shown in the detailed information is in the stopped state, then no action is required.

If this message is output, then restart the server instance even if the server instance was already started.

EEADM0303:Login exception while connecting to server {0}, MBeans from server instance {0} cannot be cascaded

Variable Information

{0}: server instance name

Explanation

A verification error occurred while connecting to a server instance.

System Action

Processing is continued.

User Action

An inconsistency may have occurred in the Interstage Java EE DAS service and IJServer cluster verification information.

Refer to "[14.2.9 When a Message is Output Stating that Authentication has Failed](#)" and take any required action, and then restart the targeted server instance.

EEADM0309:Cascading Exception, please refer to Stack Trace

Explanation

An error occurred while registering server instance information to the Interstage Java EE DAS service.

System Action

Processing is continued.

User Action

Refer to the stack trace output at the same time and also to warning/error messages output prior to this message and take any required action.

INFO: ISJEE_EEADM0337:Runtime MBeans for the Server Instance {0} are cascaded on to DAS in the background

Variable Information

{0}: server instance name

Explanation

The runtime MBean information of the server instance was transferred to the Interstage Java EE DAS service running in the background.

13.11 Messages that Contain "EJB" in the Message ID

13.11.1 EJB5000 to EJB5099

ERROR: ISJEE_EJB5013: Some EJB exception occurred : [{0}]

Variable Information

{0}: EJB application name

Explanation

An error occurred while restoring a serialized Stateful Session Bean.

System Action

An exception is returned to the calling source.

User Action

Check whether all classes used by the Stateful Session Bean are set in the class path.

ERROR: ISJEE_EJB5017: Exception while running preinvoke : ejbName = [{0}]

Variable Information

{0}: EJB application name

Explanation

An exception occurred during preprocessing before execution of the EJB application method.

System Action

An exception is returned to the calling source.

User Action

Follow the action advised in the error information output immediately after this message.

ERROR: ISJEE_EJB5018: An exception was thrown during an ejb invocation on [{0}]

Variable Information

{0}: EJB application name

Explanation

An exception was returned during execution of the EJB application method.

System Action

An exception is returned to the calling source.

User Action

Follow the action advised in the exception information returned by the EJB application output in the server log.

If the EJB application name is "TimerBean", then an error occurred during execution of the EJB timer service.

Refer to the message and exception information that was also output and fix the error.

WARNING: ISJEE_EJB5059: Exception creating ejb object : [{0}]**Variable Information**

{0}: EJB application name

Explanation

An exception occurred during generation of the EJB object.

System Action

An exception is returned to the calling source.

User Action

Follow the action advised in the exception information returned by the EJB application output in the server log.

ERROR: ISJEE_EJB5069: Exception getting ejbcreate method : [{0}]**Variable Information**

{0}: EJB application name

Explanation

A create method that does not have an argument is not defined in the Home interface or the LocalHome interface.

System Action

An exception is returned to the calling source.

User Action

Define the create method that does not have an argument.

INFO: ISJEE_EJB5070: Exception creating stateless session bean : [{0}]**Variable Information**

{0}: EJB application name

Explanation

An exception occurred while generating the Stateless Session Bean instance.

System Action

An exception is returned to the calling source.

User Action

Follow the action advised in the exception information returned by the EJB application output in the server log.

ERROR: ISJEE_EJB5071: Some remote or transactional roll back exception occurred**Explanation**

Either a java.rmi.RemoteException or a javax.transaction.RollbackException occurred.

System Action

An exception is returned to the calling source.

User Action

Follow the action advised in the exception information returned by the EJB application output in the server log.

ERROR: ISJEE_EJB5090: Exception in creating EJB container [{0}]

Variable Information

{0}: Error cause

Explanation

An error occurred during EJB container activation.

System Action

Starting processing is continued.

User Action

Follow the action advised in the message output as the error cause in the variable information then execute the processing again.

The possible causes are as follows:

- Check whether the same JNDI name for remote use is defined in more than one Bean.
- Check whether there is a resource with the same name as the Bean JNDI name for remote use.
- Check whether all classes used within the Bean are able to be used.
- Check whether all resources used within the Bean are able to be used, and check the resource definitions, JDBC drivers, and so on.
- If a data source is used, then check whether the connected database is operating.
- If JMS resources are used, then check whether creation of the physical connection destination is completed.
- If the character string "java.lang.Exception: Resource Adapter selected does not support Inbound" is output in the exception information, then check whether the resource adapter class is specified in the <resourceadapter-class> tag of the ra.xml of the deployed connector module.

13.11.2 EJB5100 to EJB5199

WARNING: ISJEE_EJB5108:Unable to initialize EJB Timer Service. The likely cause is the database has not been started or the timer database table has not been created.

Explanation

EJB timer service initialization failed.

System Action

The EJB timer service is disabled but EJB container processing is continued.

User Action

If the EJB timer service is not used, then this warning can be ignored.

The possible causes are as follows:

- Check whether the database used by the EJB timer service is started.
- Check whether the connection pool definitions for the JDBC resources used by the EJB timer service are correct. In particular, check the connection properties (URL, user name, password, and so on) of the JDBC drivers.
- Check whether the JDBC resources used by the EJB timer service are enabled at this IJServer cluster.

Remove the cause of the error, then restart the IJServer cluster.

INFO: ISJEE_EJB5109:EJB Timer Service started successfully for datasource [{0}]

Variable Information

{0}: JNDI name of the JDBC resource used by the EJB timer service

Explanation

EJB timer service initialization was completed normally.

WARNING: ISJEE_EJB5110:Attempt to override reserved ejb interface method [{0}] in [{1}]. Override will be ignored.

Variable Information

{0}: Method name of EJB base interface

{1}: Method name defined in EJB application

Explanation

A method defined in the EJB application attempted to illegally override the EJB base interface method.

System Action

The method that attempted the override is ignored and start processing is continued.

User Action

An unnecessary method has been defined. Therefore, correct the definitions, if required.

WARNING: ISJEE_EJB5111:Bean class for ejb [{0}] does not define a method corresponding to [{1}] interface method [{2}]

Variable Information

{0}: application name

{1}: interface type

{2}: method information

Explanation

A method definition corresponding to the method defined in the interface is not defined in the Bean class.

System Action

Starting processing is continued.

User Action

Check if the method is defined correctly in the interface and the Bean class. If necessary, correct the class and redeploy.

WARNING: ISJEE_EJB5114:Error destroying timers for container [{0}]

Variable Information

{0}: CONTAINERID of table for EJB timer service

Explanation

An error occurred while deleting the EJB timer.

System Action

Processing is continued.

User Action

EJB timer information may remain in the database. Refer to the table used by the EJB timer service and delete any records under the CONTAINERID column name that have the ID shown in the variable information.

ERROR: ISJEE_EJB5117:Timer creation failed for container [{0}] primary key [{1}] and info [{2}]

Variable Information

{0}: CONTAINERID of table for EJB timer service
{1}: TIMERID of table for EJB timer service
{2}: information

Explanation

An error occurred while creating the EJB timer.

System Action

Processing is interrupted.

User Action

Refer to the message and exception information that was also output and fix the error.

The possible causes are shown below. Remove the cause of the error, then restart the IJServer cluster.

- Check whether the JDBC resources and JDBC connection pool specified in the timer data source are defined correctly.
- Check whether the connection destination database is operating.
- Check whether a table for the EJB timer service has been created in the database.

WARNING: ISJEE_EJB5118:Failure removing timer bean [{0}]

Variable Information

{0}: TIMERID of table for EJB timer service

Explanation

An error occurred while deleting the EJB timer.

System Action

Processing is continued.

User Action

A problem may have occurred for the connection to the database used by the EJB timer service. Remove the cause of the error, then restart the IJServer cluster. EJB timer information may remain in the database. Refer to the table used by the EJB timer service and delete any records under the CONTAINERID column name that have the ID shown in the variable information.

WARNING: ISJEE_EJB5119:Expunging timer [{0}] after [{1}] failed deliveries

Variable Information

{0}: EJB timer information (see (*1))
{1}: Execution count for the EJB timer callback method

*1 The following information, separated by spaces, is output in the EJB timer information:

1. TIMERID of table for EJB timer service
2. Enterprise JavaBean name
3. EJB application name
4. EJB timer status ("CREATED" time when created, "SCHEDULED" already planned, "BEING_DELIVERED" time when callback method executed, "CANCELLED" time when cancelled)
5. EJB timer type ("PERIODIC" if executed repeatedly, "SINGLE-ACTION" if executed only once)
6. CONTAINERID of table for EJB timer service
7. INITIALEXPIRATIONRAW of table for EJB timer service
8. INTERVALDURATION of table for EJB timer service

9. Entity Bean primary key (only if the Timer object is an Entity Bean)

Explanation

An EJB timer that has exceeded the maximum resend count is being deleted.

System Action

{0} records are deleted from the table used by the EJB timer service.

User Action

Refer to the EJB timer information and check the application. Take an action, such as performing registration again.

Alternatively, set suitable values for the resend interval and the maximum resend count.

INFO: ISJEE_EJB5122:EJB Timer Service shutdown at [{0}]

Variable Information

{0}: Time when stopped

Explanation

The EJB timer service was stopped at the time indicated in the variable information.

WARNING: ISJEE_EJB5123:Rolling back timed out transaction [{0}] for [{1}]

Variable Information

{0}: Transaction status

{1}: EJB application name

Explanation

The transaction was rolled back by the transaction completion time monitoring of the EJB container.

User Action

If the value defined as the transaction timeout value is appropriate, then there is no problem.

Otherwise, check the following definition values and change them to suitable values:

- Values defined for transaction timeout

Revise the value specified for transaction timeout. For details on how to define transaction timeout values, refer to "[7.8 Operating Environment-related Definition Items](#)" > "[7.8.13 Transaction Service Definition Items](#)".

- Values defined in the <ejb><cmt-timeout-in-seconds> tag

If the EJB application transaction management type is "Container" and the <ejb><cmt-timeout-in-seconds> tag is defined in the "Interstage EJB application deployment descriptor (sun-ejb-jar.xml)", then revise the specified value.

WARNING: ISJEE_EJB5127:Error during passivation of [{0}]

Variable Information

{0}: EJB application name

Explanation

An error occurred during passivation of the Stateful Session Bean.

System Action

Passivate processing is interrupted.

User Action

Follow the action advised in the error information output immediately after this message.

ERROR: ISJEE_EJB5128:Error during Stateful Session Bean activation for key [{0}]**Variable Information**

{0}: Identifier

Explanation

An error occurred during activation of the Stateful Session Bean.

System Action

Activate processing is interrupted.

User Action

Follow the action advised in the error information output immediately after this message.

ERROR: ISJEE_EJB5129:Error in ContainerSynchronization::afterCompletion**Explanation**

An error occurred during afterCompletion processing.

System Action

Error information is output and processing is continued.

User Action

Follow the action advised in the error information output immediately after this message.

WARNING: ISJEE_EJB5136:Creation of passivation directory failed for {0}**Variable Information**

{0}: Directory that stores the application conversational states

Explanation

An error occurred during creation of the directory that stores the application conversational states.

System Action

Processing is continued.

User Action

Remove the cause of the failure to create the directory and then restart the server instance.

Possible causes are as follows:

- Check for errors in the path setting of the directory that stores the application conversational states.
- Check whether access is permitted to the directory that stores the application conversational states.
- Check whether characters that contravene the naming rules are used in the EJB application name.

WARNING: ISJEE_EJB5154:Unexpected error while registering method {3} for {0} ; {1} ; {2}**Variable Information**

{0}: EJB application name

{1}: EJB module name

{2}: Application name (*1)

{3}: Method information (*2)

*1 If deployed by an ejb-jar module, null is output.

*2 The following information is output in the method information:

```
< interface class package names separated by underscores>_<interface class name (*3)>_<method name
>(<method parameter class name >)
```

*3 If in EJB 3.0 format, the output is as follows:

- If a remote business interface: <_interface class name_Remote>
- If a local business interface: <_interface class name_Local>

Explanation

An error occurred during registration of a method monitor information object.

System Action

Processing is continued but monitor information is not collected.

User Action

If the EJB application name includes a colon (:), change the name so that it does not include a colon and then deploy the application again.

If the problem persists, use the iscollectinfo command to collect troubleshooting information and contact your service engineer.

WARNING: EJB5156:Unexpected error while unregistering method {3} for {0} ; {1} ; {2}

Variable Information

- {0}: EJB application name
- {1}: EJB module name
- {2}: Application name (*1)
- {3}: Method information (*2)

*1 If deployed by an ejb-jar module, null is output.

*2 The following information is output in the method information:

```
< interface class package names separated by underscores>_<interface class name (*3)>_<method name
>(<method parameter class name >)
```

*3 If in EJB 3.0 format, the output is as follows:

- If a remote business interface: <_interface class name_Remote>
- If a local business interface: <_interface class name_Local>

Explanation

An error occurred during de-registration of a method monitor information object.

System Action

Processing is continued.

User Action

If the EJB application name includes a colon (:), change the name so that it does not include a colon and then deploy the application again.

If the problem persists, then use the iscollectinfo command to collect troubleshooting information and contact your service engineer.

WARNING: ISJEE_EJB5158:Unexpected error while registering container stats for {0} ; {1} ; {2}

Variable Information

- {0}: EJB application name
- {1}: EJB module name
- {2}: Application name (*1)

*1 If deployed by an ejb-jar module, null is output.

Explanation

An error occurred during registration of an EJB monitor information object.

System Action

Processing is continued but monitor information is not collected.

User Action

If the EJB application name includes a colon (:), change the name so that it does not include a colon and then deploy the application again.

If the problem persists, then use the iscollectinfo command to collect troubleshooting information and contact your service engineer.

WARNING: ISJEE_EJB5166:Unexpected error while registering cache stats for {0} ; {1} ; {2}

Variable Information

{0}: EJB application name

{1}: EJB module name

{2}: Application name (*1)

*1 If deployed by an ejb-jar module, null is output.

Explanation

An error occurred during registration of a cache monitor information object.

System Action

Processing is continued but monitor information is not collected.

User Action

If the EJB application name includes a colon (:), change the name so that it does not include a colon and then deploy the application again.

If the problem persists, then use the iscollectinfo command to collect troubleshooting information and contact your service engineer.

ERROR: ISJEE_EJB5173:Bean class for ejb [{0}] does not define a method corresponding to [{1}] interface method [{2}]

Variable Information

{0}: Application name

{1}: Interface type

{2}: Method information

Explanation

A method definition that corresponds to the method defined in the interface is not defined in the Bean class.

System Action

An exception is issued and processing is interrupted.

User Action

Check whether the correct method is defined in the interface or Bean class and correct the class, and then execute deployment again.

ERROR:ISJEE_EJB5174:A Stateful Session Bean max-cache-size limit was reached.

Variable Information

None.

Explanation

The upper limit for the maximum Stateful Session Bean cache size was reached.

System Action

Processing is interrupted.

User Action

Check the following items:

- EJB container and Interstage EJB application deployment descriptor (sun-ejb-jar.xml) cache.

Ensure that the values of "Maximum Cache Size" and "Cache Idle Timeout" of the EJB container and sun-ejb-jar.xml are appropriate for the Bean instance that will be created by the application.

If the value of the EJB container cache is changed, then restart the J2SE cluster. If the value of the EJB application cache is changed, then redeploy the EJB application (for details, refer to "[7.8 Operating Environment-related Definition Items](#)" > "[7.8.8 EJB Container Definition Items](#)" > "[Enterprise Bean Instance Caching](#)").

- The remove method of the Stateful Session Bean application.

Check whether there is a leak in the method to remove unnecessary Bean instances from the application - if there is, then correct the application before redeploying it.

- The value of the "SFSB Persistence Type" definition item.

By changing the item value to "file", it will still be possible to create the Bean instance even when the maximum cache size is exceeded and this message is not output - however, there are several points that should be noted.

WARNING: ISJEE_EJB5175: The BACKUPSTORE and files don't exist because sfsb-persistence-type is 'none'.

Variable Information

None.

Explanation

If the SFSB persistence type is "none", then the backup store and files of the instance Bean will not exist. For this reason, if the Stateful Session Bean instance was deleted according to the cache idle timeout, that Bean instance cannot be used again.

System Action

Processing is continued.

User Action

In EJB 2.1, call the create method, and then execute the process again. In EJB 3 or later, call the lookup method instead. Alternatively, review the Stateful Session Bean instance cache idle timeout or SFSB persistence type settings.

WARNING: ISJEE_EJB5176: Error while removing timed out beans.

Variable Information

None.

Explanation

Bean instance deletion timed out.

System Action

Processing is continued.

User Action

Refer to the error message output prior to this message and take any required action. If the problem persists, then use the `iscollectinfo` command to collect investigation information and contact your service engineer .

ERROR: ISJEE_EJB5177: getNextException() was called for caught SQLException.

Explanation

The getNextException method was called for the SQLException caught.

System Action

An exception is returned to the caller.

User Action

Refer to the error message output after this message and take any required action.

13.11.3 EJB6000 to EJB6099

ERROR: EJB6007: Could not initialize container using {0}:{1}

Variable Information

{0}: Builder class name

{1}: Error information

Explanation

Container initialization failed.

System Action

An exception is returned to the caller.

User Action

Refer to {1} to remove the cause of the error. If the cause of the error cannot be identified, then use the iscollectinfo command to collect investigation information and contact your service engineer.

ERROR: ISJEE_EJB6035: Caught {0} while processing CMP beans for application [{1}]; module [{2}]: {3}. See log for details.

Variable Information

{0}: Internal exception information

{1}: Application name

{2}: deploy file name

{3}: Error information

Explanation

An error occurred during CMP Entity Bean deployment processing.

System Action

Deploy processing is interrupted.

User Action

Check the error information output in the variable information to identify the cause of the error and fix it.

ERROR: ISJEE_EJB6036: Caught {0} while processing CMP bean [{1}] for application [{2}]; module [{3}]: {4}. See log for details.

Variable Information

{0}: Exception class

{1}: EJB application name

{2}: Application name

{3}: Path information

{4}: Detail message

Explanation

An error occurred during CMP Entity Bean deployment processing.

System Action

The Bean deployment processing is interrupted.

User Action

Revise the Bean definitions noted in the variable information. Refer to the detailed messages and other messages and remove the cause of the error, then execute the processing again.

INFO: ISJEE_EJB6038: **RemoteBusinessJndiName: {0}; remoteBusIntf: {1}

Variable Information

{0}: JNDI name

{1}: Business interface name

Explanation

The JNDI name has been associated with the business interface output.

ERROR: ISJEE_EJB6040: Invalid jndiName forappld={0}; moduleName={1}; ejbName={2}; jndiName={3}

Variable Information

{0}: Application name

{1}: Module identifier

{2}: EJB application name

{3}: Specified JNDI name (output only if a name is specified)

Explanation

The JNDI name is invalid.

System Action

Initialization of this application is interrupted.

User Action

Check whether the correct JNDI name is specified for the application name output in the variable information.

INFO: ISJEE_EJB6047: Rescheduling missed expiration for periodic timer {0} . Timer expirations should have been delivered starting at {1}

Variable Information

{0}: EJB timer information (see **(*1)**)

{1}: Time when callback method should have been executed

***1** The following information, separated by spaces, is output in the EJB timer information:

1. TIMERID of table for EJB timer service
2. Enterprise JavaBean name
3. EJB application name
4. EJB timer status ("CREATED" time when created, "SCHEDULED" already planned, "BEING_DELIVERED" time when callback method executed, "CANCELLED" time when cancelled)
5. EJB timer type ("PERIODIC" if executed repeatedly, "SINGLE-ACTION" if executed only once)
6. CONTAINERID of table for EJB timer service
7. INITIALEXPIRATIONRAW of table for EJB timer service

8. INTERVALDURATION of table for EJB timer service
9. Entity Bean primary key (only if the Timer object is an Entity Bean)

Explanation

The execution time is reset because the callback method execution time {1} for the repeatedly executed EJB timer {0} has passed.

INFO: ISJEE_EJB6048: Rescheduling missed expiration for periodic timer {0}. Last timer expiration occurred at {1}

Variable Information

{0}: EJB timer information (see (*1))

{1}: Date and time when callback method was last executed

*1 The following information, separated by spaces, is output in the EJB timer information:

1. TIMERID of table for EJB timer service
2. Enterprise JavaBean name
3. EJB application name
4. EJB timer status ("CREATED" time when created, "SCHEDULED" already planned, "BEING_DELIVERED" time when callback method executed, "CANCELLED" time when cancelled)
5. EJB timer type ("PERIODIC" if executed repeatedly, "SINGLE-ACTION" if executed only once)
6. CONTAINERID of table for EJB timer service
7. INITIALEXPIRATIONRAW of table for EJB timer service
8. INTERVALDURATION of table for EJB timer service
9. Entity Bean primary key (only if the Timer object is an Entity Bean)

Explanation

The repeatedly executed EJB timer is reset. The EJB timer callback method was last executed at {1}.

INFO: ISJEE_EJB6053: **##[ejbCreate] bean has 2.x style ejbCreate: {0}

Variable Information

{0}: Exception information

Explanation

An ejbCreate method of EJB 2.x or earlier is defined. It is registered as the callback method called when instances are generated.

INFO: ISJEE_EJB6063: Skipping destruction of SFSB {0} after @Remove method {1} due to (retainIfException == true) and exception {2}

Variable Information

{0}: EJB application name

{1}: Method name

{2}: Exception information

Explanation

Exception {2} occurred for the method at {1}. However, the Stateful Session Bean was not destroyed because "true" is set for the retainIfException element in the @Remove annotation.

WARNING: EJB6070: Error during passivation:{0};{1}

Variable Information

{0}: Enterprise JavaBean name
{1}: Exception information

Explanation

An error occurred in Bean instance passivation processing.

System Action

Processing is continued.

User Action

Check whether the java.io.Serializable interface has been implemented in the Bean class - if it has not, then correct the application before redeploying it.

WARNING: ISJEE_EJB6071: sfsb passivation error. Key: [{0}]

Variable Information

{0}: Identifier

Explanation

An error occurred during passivation.

System Action

Passivate processing is interrupted.

User Action

Follow the action advised in the error information output immediately after this message.

WARNING: ISJEE_EJB6086: [{0}]: passivateEJB(), Exception caught ->

Variable Information

{0}: Deletion policy and Bean class name

Explanation

An error occurred during passivation.

System Action

Passivate processing is interrupted.

User Action

Follow the action advised in the error information output immediately after this message.

ERROR: ISJEE_EJB6087: {0} : Cannot load from BACKUPSTORE FOR Key: <{1}>

Variable Information

{0}: Deletion policy and Bean class name
{1}: Session ID

Explanation

The called session cannot be loaded from the backed up session store. The session information was deleted from the session store by the non-communication monitoring function of the Stateful Session Bean instance.

System Action

An exception is returned to the calling source.

User Action

Execute the processing again starting from the create method, if using EJB 2.1, or from the lookup method if using EJB 3 or later. Also, revise the settings for the non-communication monitoring function of the Stateful Session Bean instance.

If the IIOP communication load balancing function linked to IPCOM is used, then check if a Stateful Session Bean is being used.



If the IIOP communication load balancing function linked to IPCOM is used, then a Stateful Session Bean cannot be used.

13.11.4 EJB6100 to EJB6199

WARNING: ISJEE_EJB6102: [Pool-{0}]: Exception during reSize

Variable Information

{0}: EJB application name

Explanation

An error occurred during pool size reconciliation.

System Action

Pool size reconciliation is aborted, but pool monitoring continues.

User Action

Refer to the error message output immediately after this one and take action.

INFO: ISJEE_EJB6105: Registered ReadOnlyBeanNotifier: {0}

Variable Information

{0}: internal information

Explanation

The ReadOnly notification object was registered.

This is an information message indicating that the container start process was executed correctly.

INFO: ISJEE_EJB6114: EJBLifecycle: Got GMS module for: {0}

Variable Information

{0}: JServer cluster name

Explanation

The GMS module was fetched.

This is an information message indicating that the container start process was executed correctly.

INFO: ISJEE_EJB6120: Got Planned Shutdown Notification[1]. shutdownNodeID: {0}

Variable Information

{0}: instance name of server instance

Explanation

The EJB timer service was stopped by instance {0}.

INFO: ISJEE_EJB6121: Got Planned Shutdown Notification. shutdownNodeID: {0}

Variable Information

{0}: instance name of server instance

Explanation

The EJB timer service was stopped by instance {0}.

WARNING: ISJEE_EJB6145: Marking Tx for rollback because container for {0} is undeployed

Variable Information

{0}: Rollback target

Explanation

The application at {0} is being marked for rollback due to undeployment.

System Action

Processing is continued.

User Action

HotDeploy may have been performed during request processing. Use of the HotDeploy function is not recommended during normal transactions. Use the HotDeploy function when there are no requests.

WARNING: ISJEE_EJB6146: Error in post-ejbTimeout timer processing for {0}

Variable Information

{0}: EJB timer information (see (*1))

*1 The following information, separated by spaces, is output in the EJB timer information:

1. TIMERID of table for EJB timer service
2. Enterprise JavaBean name
3. EJB application name
4. EJB timer status ("CREATED" time when created, "SCHEDULED" already planned, "BEING_DELIVERED" time when callback method executed, "CANCELLED" time when cancelled)
5. EJB timer type ("PERIODIC" if executed repeatedly, "SINGLE-ACTION" if executed only once)
6. CONTAINERID of table for EJB timer service
7. INITIALEXPIRATIONRAW of table for EJB timer service
8. INTERVALDURATION of table for EJB timer service
9. Entity Bean primary key (only if the Timer object is an Entity Bean)

Explanation

An internal error occurred during processing after EJB timer callback processing.

System Action

Processing is continued.

User Action

A problem may have occurred with the connection to the database used by the EJB timer service.

Refer to the message and exception information that was also output and fix the error.

ERROR: ISJEE_EJB6148: appId={0} moduleName={1} ejbName={2}

Variable Information

{0}: Application name
{1}: Module name
{2}: EJB application name

Explanation

An error occurred during application initialization.

System Action

Initialization of this application is interrupted.

User Action

Refer to the other messages that are output and fix the cause of the error, then execute the processing again.

13.11.5 EJB6900 to EJB6999

WARNING: ISJEE_EJB6998: Internal error.: DETAILS={0}

Variable Information

{0}: Detail information

Explanation

An internal inconsistency occurred.

System Action

Processing is continued.

User Action

Contact the technical staff.

13.12 Messages that Contain "EJBD" in the Message ID

13.12.1 EJBD0000 to EJBD0099

INFO: ISJEE_EJBD0001: Initializing and Starting EJB Dispatcher.

Explanation

EJB Dispatcher initialization and start will start.

ERROR: ISJEE_EJBD0002: Exception Occurred in EJB Dispatcher Initialization.{0}.

Variable Information

{0}: Error information

Explanation

An error occurred in EJB Dispatcher initialization.

System Action

Start processing is interrupted.

User Action

Refer to the error information and remove the cause of the error, then execute again.

INFO: ISJEE_EJBD0003: Connecting to EJB dispatch target.target={0}.**Variable Information**

{0}: Dispatch target server instance

Explanation

The connection to the EJB Dispatcher dispatch target is in progress.

ERROR: ISJEE_EJBD0004: Exception Occurred when connecting to EJB dispatch target.target={0} error={1}.**Variable Information**

{0}: Dispatch target server instance name

{1}: Error information

Explanation

An error occurred in the connection to the EJB Dispatcher dispatch target server instance, possibly because it stopped during the connection.

System Action

Start processing is interrupted.

User Action

Check the server instance status.

ERROR: ISJEE_EJBD0005: The target does not exist.interface={0}.**Variable Information**

{0}: Interface

Explanation

The called Enterprise JavaBeans dispatch target does not exist.

System Action

The OBJ_ADAPTER exception is returned.

User Action

Take the following action.

- If the IJServer cluster which was extended by the Enterprise JavaBeans which was called has not been added as a dispatch target of the EJB Dispatcher, add the IJServer cluster as the dispatch target.
- If the EJB Dispatcher dispatch target server instance has not been started, start the server instance.
- If the application (Enterprise JavaBeans) has not been extended to the EJB Dispatcher dispatch target server instance, extend the application.
- If the active state of the application (Enterprise JavaBeans) in the EJB Dispatcher dispatch target server instance is disabled, change the active state of the application to enabled.
- If any of the 'deploy', 'redeploy', 'extend application', or 'change active state for application to enabled' operations has been executed for a started EJB Dispatcher dispatch target server instance, this information may not have been reflected in the EJB Dispatcher. Use one of the following methods to update the EJB Dispatcher information:
 - Using the disable-ejb-dispatch-target of the asadmin command, first disable the server instance as a dispatch target, then enable it again using the enable-ejb-dispatch-target subcommand.
 - Restart the server instance which the EJB Dispatcher is running on.
 - Restart the server instance which is running the Enterprise JavaBeans.

INFO: ISJEE_EJBD0006: {0}

Variable Information

{0}: EJB Dispatcher log information

Explanation

This is EJB Dispatcher log information.

INFO: ISJEE_EJBD0007: {0}

Variable Information

{0}: EJB Dispatcher log information

Explanation

This is EJB Dispatcher log information.

INFO: ISJEE_EJBD0008: {0}

Variable Information

{0}: EJB Dispatcher log information

Explanation

This is EJB Dispatcher log information.

INFO: ISJEE_EJBD0009: {0}

Variable Information

{0}: EJB Dispatcher log information

Explanation

This is EJB Dispatcher log information.

INFO: ISJEE_EJBD0010: {0}

Variable Information

{0}: EJB Dispatcher log information

Explanation

This is EJB Dispatcher log information.

INFO: ISJEE_EJBD0011: {0}

Variable Information

{0}: EJB Dispatcher log information

Explanation

This is EJB Dispatcher log information.

INFO: ISJEE_EJBD0012: Connected to EJB dispatch target {0} successfully.

Variable Information

{0}: Dispatch target server instance

Explanation

The connection to the EJB Dispatcher dispatch target succeeded.

ERROR: ISJEE_EJBD0013: The cluster {0} is not a dispatch target of {1}.**Variable Information**

{0}: IJServer cluster
{1}: EJB Dispatcher server instance

Explanation

The IJServer cluster is not the EJB Dispatcher server instance dispatch target IJServer cluster.

System Action

Processing is interrupted.

User Action

Specify an EJB Dispatcher dispatch target IJServer cluster, then execute again.

Execute the "asadmin list-ejb-dispatch-targets --target DispatcherInstance" command to list the predefined EJB Dispatcher dispatch target IJServer clusters

ERROR: ISJEE_EJBD0014: The cluster {0} is already a dispatch target of {1}.**Variable Information**

{0}: IJServer cluster
{1}: EJB Dispatcher server instance

Explanation

The IJServer cluster already belongs to the EJB Dispatcher dispatch target.

System Action

Processing is interrupted.

User Action

Specify an IJServer cluster that does not belong to the EJB Dispatcher dispatch target, then execute again.

Execute the "asadmin list-ejb-dispatch-targets --target DispatcherInstance" command to list the predefined EJB Dispatcher dispatch target IJServer clusters.

ERROR: ISJEE_EJBD0015: The Domain Administration Server (DAS) cannot be a dispatch target.**Explanation**

Interstage Java EE DAS services cannot be specified as an EJB Dispatcher dispatch target.

System Action

Processing is interrupted.

User Action

Specify the IJServer cluster, then execute again.

ERROR: ISJEE_EJBD0016: ConfigException occurred in InitialIiopDispatchService.**Explanation**

An error occurred in InitialIiopDispatchService.

System Action

Processing is interrupted.

User Action

Refer to the error information that will be output, remove the cause of the error then reexecute.

WARNING: ISJEE_EJBD0018: The same EJB application(interfaceName={0}, adapaterName={1}) has already been loaded from the target cluster {2} to EJB Dispatcher. It cannot be loaded from the target cluster {3} again.

Variable Information

{0}: Interface
{1}: Application ID
{2}: IJServer cluster
{3}: IJServer cluster

Explanation

The application cannot be loaded to the EJB Dispatcher because an application with the same name has already been loaded to the EJB Dispatcher using another IJServer cluster.

System Action

Processing is continued.

User Action

When using the EJB Dispatcher, do not deploy applications with the same name to multiple dispatch target IJServer clusters.

WARNING: ISJEE_EJBD0019: The instance {0} is not running.

Variable Information

{0}: Server instance

Explanation

The server instance is not running.

System Action

Processing is continued.

User Action

Check the server instance status, then execute again.

WARNING: ISJEE_EJBD0020: There are no EJB applications have been deployed on instance {0}.

Variable Information

{0}: Server instance

Explanation

No applications have been deployed to the server instance.

System Action

Processing is continued.

User Action

Deploy an EJB application to the specified server instance IJServer cluster.

WARNING: ISJEE_EJBD0021: EJB Dispatcher stopped dispatching to target instance {0}, because its Java VM was no response.

Variable Information

{0}: Server instance

Explanation

The EJB Dispatcher stopped the dispatch to the dispatch target server instance because there was no reply from the Java VM.

System Action

Processing is continued.

User Action

Investigate the cause of the failure of the Java VM to reply, according to system load status and memory usage, and the log file. Additionally, investigate whether there is a problem in the application based on the thread dump that was output to the IJServer cluster Java VM log (jvm.log).

WARNING: ISJEE_EJBD0022: EJB Dispatcher stopped dispatching to target instance {0}, because it was stopped.

Variable Information

{0}: Server instance

Explanation

The EJB Dispatcher stopped the dispatch to the dispatch target server instance because the latter has stopped.

System Action

Processing is continued.

User Action

Check what caused the server instance to stop.

ERROR: ISJEE_EJBD0023: Exception occurred when getting running instances from Node Agent.

Explanation

An error occurred when the list of started server instances was obtained from the Interstage Java EE Node Agent service.

System Action

Processing is continued.

User Action

Check the operational status of the Interstage Java EE Node Agent service, then restart the Interstage Java EE Node Agent service.

ERROR: ISJEE_EJBD0024: Instance {0} is not a dispatch target of {1}.

Variable Information

{0}: Server instance

{1}: Server instance

Explanation

The specified server instance is not an EJB Dispatcher dispatch target.

System Action

Processing is interrupted.

User Action

Specify an EJB Dispatcher dispatch target server instance, then execute again.

ERROR: ISJEE_EJBD0025: EJB Dispatcher can not deal with this target instance {0} in cluster {1}.

Variable Information

{0}: Server instance
{1}: IJServer cluster

Explanation

The EJB Dispatcher could not add the server instance as a dispatch target - possible causes are as follows:

- The IJServer cluster server instance may have been added after the IJServer cluster was added as the EJB Dispatcher dispatch target.
- The IIOP listener definition for the IJServer cluster server instance may have been changed after the IJServer cluster was added as the EJB Dispatcher dispatch target.
- The attempt was made to add the server instance as an EJB Dispatcher dispatch target, however the server instance may already have stopped.

System Action

Processing of the server instance continues without the server instance being added as an EJB Dispatcher dispatch target.

User Action

If the server instance is not running, then no action is necessary. Otherwise, take one of the actions below:

- Execute the "asadmin enable-ejb-dispatch-target" command for the server instance.
- Using the Interstage Java EE Admin Console or "asadmin delete-ejb-dispatch-target" and "asadmin create-ejb-dispatch-target" commands, first remove the server instance IJServer cluster in which the error occurred as a dispatch target, then add it again.
- Restart the EJB Dispatcher IJServer cluster.

13.13 Messages that Contain "GMS" in the Message ID

13.13.1 GMS1000 to GMS1099

WARNING: ISJEE_GMS1001: Exception Occurred in GMS Initialization:{0}

Variable Information

{0}: Error information

Explanation

An error occurred during initialization of the group management service.

System Action

Processing is continued.

User Action

Refer to the error information and fix the cause of the error, then execute again.

INFO: ISJEE_GMS1002: Initializing and Starting GroupManagementService

Explanation

The group management service initialization and start processing has started.

WARNING: ISJEE_GMS1003: GroupManagementService classes are not available in the classpath.{0}. Continuing startup without GroupManagementServices enabled.

Variable Information

{0}: Class information

Explanation

An error occurred while referencing the class for the group management service.

System Action

Processing is continued.

User Action

Refer to the error information and fix the cause of the error, then execute again.

WARNING: ISJEE_GMS1004: Exception Occurred in Instance GMS Initialization:{0}

Variable Information

{0}: Error information

Explanation

An error occurred during initial processing for the group management service.

System Action

Processing is continued.

User Action

Refer to the error information and fix the cause of the error, then execute again.

WARNING: ISJEE_GMS1005: Exception Occurred in GMS Configuration:{0}

Variable Information

{0}: Error information

Explanation

An error occurred while referencing definitions for the group management service.

System Action

Processing is continued.

User Action

Refer to the error information and fix the cause of the error, then execute again.

WARNING: ISJEE_GMS1006: Exception Occurred while Adding IOP endpoints:{0}

Variable Information

{0}: Error information

Explanation

An error occurred during addition of the IOP end point for the group management service.

System Action

Processing is continued.

User Action

Refer to the error information and fix the cause of the error, then execute again.

WARNING: ISJEE_GMS1007: Configuration Exception Occurred while Adding IOP endpoints:{0}

Variable Information

{0}: Error information

Explanation

An error occurred during addition of the IIOP end point for the group management service.

System Action

Processing is continued.

User Action

Refer to the error information and fix the cause of the error, then execute again.

WARNING: ISJEE_GMS1008: Exception Occurred while getting Node Agent Host Name:{0}

Variable Information

{0}: Error information

Explanation

Failed to fetch the Node Agent host name for the group management service.

System Action

Processing is continued.

User Action

Refer to the error information and fix the cause of the error, then execute again.

INFO: ISJEE_GMS1009: Reporting Joined and Ready State of {0} to group {1}

Variable Information

{0}: Instance name

{1}: Cluster name

Explanation

This message notifies that the group management service is participating and preparations are completed.

WARNING: ISJEE_GMS1010: GMSLifecycleImpl.onReady: Exception occurred:{0}

Variable Information

{0}: Error information

Explanation

An error occurred for the preparation completion notification for the group management service.

System Action

Processing is continued.

User Action

Refer to the error information and fix the cause of the error, then execute again.

WARNING: ISJEE_GMS1011: Exception Occurred while GMS Shutdown:{0}

Variable Information

{0}: Error information

Explanation

An error occurred during stop processing for the group management service.

System Action

Processing is continued.

User Action

Refer to the error information and fix the cause of the error, then execute again.

13.14 Messages that Contain "GUI" in the Message ID

13.14.1 GUI1000 to GUI1099

ERROR: ISJEE_GUI1001: Cannot find System Property. {0}

Variable Information

{0}: Detail information

Explanation

The system property could not be found.

System Action

Processing is continued.

When this message is output, the Interstage Java EE Admin Console may not be displayed correctly.

User Action

If the problem persists, then use the iscollectinfo command to collect investigation information and contact your service engineer.

13.15 Messages that Contain "ijdas" in the Message ID

13.15.1 ijdass10000 to ijdass10099

INFO: ijdass10000: Interstage Java EE DAS service has started.

Explanation

The Interstage Java EE DAS service has started.

INFO: ijdass10001: Interstage Java EE DAS service has stopped.

Explanation

The Interstage Java EE DAS service has stopped.

ERROR: ijdass10002: Interstage Java EE DAS service cannot be started.

Explanation

The Interstage Java EE DAS service cannot be started.

System Action

The Interstage Java EE DAS service cannot be started due to an error.

User Action

Refer to the message in the previous error message to rectify this error.

If there is no message, then refer to the file below and check whether they contain the message that states the cause of the error:

- System log/event log

- Interstage Java EE DAS service server log

ERROR: ijdas10003: Interstage Java EE DAS service cannot be stopped.

Explanation

The Interstage Java EE DAS service cannot be stopped

System Action

The Interstage Java EE DAS service cannot be stopped due to an error.

User Action

Refer to the message in the previous error message to rectify this error.

If there is no message, then refer to the files below and check whether they contain the message that states the cause of the error.

- System log/event log
- Interstage Java EE DAS service server log

ERROR: ijdas10004: Too many operands were specified.

Explanation

Too many operands were specified.

System Action

The operation will fail.

User Action

Execute the command again in accordance with the command format.

ERROR: ijdas10005: There are no permissions for executing the command.

Explanation

There are no permissions for executing the command.

System Action

The operation will fail.

User Action

Execute the command again logged on as a user with administrator permissions.

ERROR: ijdas10006: The specified service does not exist. name={0} detail={1}

Variable Information

- {0}: Service name
- {1}: System error number

Explanation

The specified service does not exist.

System Action

The operation will fail.

User Action

- A system error number will be shown in this message. Contact the system administrator.
- The structure of registry information related to the Interstage Java EE DAS service may be incomplete or corrupt. Either restore from a back file of the registry or reinstall the product.

- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijdas10007: Interstage Java EE DAS service cannot connect to the service control manager. name={0} func={1} detail={2}

Variable Information

- {0}: Service name
- {1}: Error information
- {2}: System error number

Explanation

An Interstage Java EE DAS service cannot connect to the service control manager.

System Action

The Interstage Java EE DAS service failed to initialize. The process cannot continue.

User Action

The error may be related to a registry problem or it may be a system error returned by the operating system.

- A system error number is displayed in this message. Contact the system administrator.
- The structure of registry information related to the Interstage Java EE DAS service may be incomplete or corrupt. Either restore from the back file of the registry or reinstall the product.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijdas10008: Interstage Java EE DAS service closing event cannot be created. detail={0}

Variable Information

- {0}: System error number

Explanation

The Interstage Java EE DAS service closing event cannot be created. Possible causes to consider are a system error returned by the operating system, or a lack of resources.

System Action

The Interstage Java EE DAS service failed to initialize. The process cannot continue.

User Action

- A system error number will be displayed in this message. Contact the system administrator.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

INFO: ijdas10009: Interstage Java EE DAS service is already started.

Explanation

The Interstage Java EE DAS service is already started. The operation may have been executed while this service was in the process of starting.

System Action

There will be no impact on the system and the service will continue.

ERROR: ijdas10010: Insufficient memory.

Explanation

There is insufficient memory to execute the command.

System Action

The operation will fail.

User Action

Close applications to free memory and then execute it again.

ERROR: ijdas10011: A command that was called internally cannot be executed. func={0} detail={1}

Variable Information

{0}: Error information
{1}: System error number

Solaris32/64 Linux32/64

No error information or system error number will be produced.

Explanation

An internal command cannot be executed.

System Action

The operation will fail.

User Action

Either, or both, of the following commands may not exist, or there may be no permissions to access the file:

- asadmin command
- ijdasstat command

Take the following action:

- Check that the above commands exist. If any of the above commands do not exist, it may have been deleted or the product may not have been installed correctly. Install the product again.
- If the above commands exist, check each of their access permissions.
- If access permissions are adequate, the above commands may have been corrupted, reinstall the product.
- A system error number is included with this message. Contact the system administrator.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijdas10012: Cannot find a command that was called internally. func={0} detail={1}

Variable Information

{0}: Error information
{1}: System error number

Explanation

An internal command cannot be found. The file required for the Interstage Operation Management Service is incomplete.

System Action

The operation will fail.

User Action

The following command may not exist:

- asadmin command

Take the following action:

- Check that the above command exists.

- The above command may not exist, or it may have been deleted or the product may not be installed correctly, if so install the product again.
- A system error number is included with this message. Contact the system administrator.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijdas10013: Access to the service control manager was denied.**Explanation**

Access to the service control manager was denied.

System Action

The operation will fail.

User Action

- The structure of registry information related to the Interstage Java EE DAS service may be incomplete or corrupt. Either restore from the back file of the registry or reinstall the product.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijdas10014: Cannot find the registry. key={0} entry={1} func={2} detail={3}**Variable Information**

{0}: Registry key
{1}: Registry entry name
{2}: Error information
{3}: System error number

Explanation

The registry key and the registry entry cannot be found.

System Action

The operation will fail.

User Action

- A system error number is included with this message. Contact the system administrator.
- The structure of registry information related to the Interstage Java EE DAS service may be incomplete or corrupt. Either restore from the back file of the registry or reinstall the product.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijdas10015: An error occurred in a command called internally. code={0}**Variable Information**

{0}: End code

Explanation

An error occurred with an internal command.

System Action

The operation will fail.

User Action

This message reports problems with processing of internal commands. Refer to the files below and check whether they contain the message that states the cause of the error.

- System log/event log

- Interstage Java EE DAS service server log

ERROR: ijdas10016: A system error was returned by the operating system. func={0} detail={1}

Variable Information

{0}: Error information
{1}: System error number

Explanation

A system error has been returned by the operating system.

System Action

The operation will fail.

User Action

- A system error number is included with this message. Contact the system administrator
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

INFO: ijdas10017: The operation that was requested is already running. control={0}

Variable Information

{0}: Control code

Explanation

The requested operation is already running.

System Action

System processing is not affected and can continue.

ERROR: ijdas10018: Interstage Java EE DAS service did not stop normally.

Explanation

The Interstage Java EE DAS service did not stop normally.

System Action

The service stopped however the command that was executed may not have completed..

User Action

Refer to the message in the previous error to rectify this error.

INFO: ijdas10019: Interstage Java EE DAS service has already stopped.

Explanation

The Interstage Java EE DAS service has already stopped.

System Action

System processing is not affected.

ERROR: ijdas10020: Interstage Java EE DAS service is disabled. name={0}

Variable Information

{0}: Service name

Explanation

The Interstage Java EE DAS service is disabled.

System Action

The operation will fail.

User Action

- In [Control Panel] > [Admin tool] > [Services], check the status of the service name shown in the variable information. If the status is "invalid," change the start-up type in the [General] tab to "Automatic" and perform the operation again.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijdas10021: Interstage Java EE DAS service has been deleted.

Explanation

The Interstage Java EE DAS service has been deleted.

System Action

The operation will fail.

User Action

Install the product again.

ERROR: ijdas10022: There is no response from Interstage Java EE DAS service.

Explanation

There is no response from the Interstage Java EE DAS service.

System Action

The operation will fail.

User Action

- The Interstage Java EE DAS service may have stopped responding due to there being a high load on the system. Check the system status.
- Refer to the event viewer to check that the system is operating normally.

ERROR: ijdas10023: Interstage Java EE DAS service operation failed.

Explanation

The Interstage Java EE DAS service operation failed.

System Action

The operation will fail.

User Action

Refer to the event viewer to check that the system is operating normally.

Refer to the files below and check whether they contain the message that states the cause of the error.

- System log/event log
- Interstage Java EE DAS service server log

Refer to "[14.2.1 Operating Environment-Related Errors](#)" to check whether the cause of the startup failure is mentioned.

ERROR: ijdas10024: A request to stop Interstage Java EE DAS service was made while it was starting up.

Explanation

A request to stop the service was made while it was starting up.

System Action

The operation will fail.

User Action

Wait for the service to complete its start up process and then execute the command again.

INFO: ijdas10025: A request to stop Interstage Java EE DAS service was made while the system was shutting down.

Explanation

A request to stop the service was made while the system was shutting down.

System Action

Processing stops

ERROR: ijdas10026: An error occurred while getting Interstage Java EE DAS service status.

Explanation

An error occurred obtaining the status of the Interstage Java EE DAS service. The Interstage Java EE DAS service may have hung up.

System Action

Processing is interrupted.

User Action

Wait for a few moments, then check the status of the Interstage Java EE DAS service using the `ijdasstat` command - if "unknown" is displayed, then perform a recovery (for details, refer to "Operating Environment-Related Errors", "Interstage Java EE DAS Service Process Recovery Procedure" in the "Troubleshooting" chapter of the Java EE Operator's Guide).

ERROR: ijdas10027: An error occurred while acquiring authentication information. func={0} detail={1}

Variable Information

{0}: Error information
{1}: System error number

Explanation

An error occurred while fetching the authentication information.

System Action

The operation will fail.

User Action

- A system error number will be shown in this message. Contact the system administrator.
- If the error information is "decryption", then the error occurred during password decryption. Since the error might have occurred for the file system, check for access problems to the files in the Java EE shared directory under the Interstage install directory.

Windows32/64

Make sure that the user specified for the Interstage Java EE DAS service login account has Administrators privileges.

- In the cases below, the Java EE install environment might have become corrupted. Use the `ijinit` command to initialize the Java EE operating environment.
 - If the error information is "ReadFile" and the system error number is "0"
 - If the error information is "CreateFile" and the system error number is "2"
 - If the error information is "ijdas_get_environment_value"

- If the error information is "ijdas_get_plaintext"
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijdass10029: Authentication of the service admin user failed.**Explanation**

Failed to authenticate the service administrator user.

System Action

The operation will fail.

User Action

Refer to "[14.2.9 When a Message is Output Stating that Authentication has Failed](#)" and take action.

ERROR: ijdass10030: The command has already been executed.**Explanation**

Command execution failed because the ijdassstart or ijdassstop command is already being executed.

System Action

The operation will fail.

User Action

Check the Interstage Java EE DAS Service status and, if required, execute the command again.

If this message is output when no other commands are being executed, then a directory used for locking might remain due to forcible termination of the command. Delete the directory below if it exists even when the ijdassstart and ijdassstop commands are not being executed.

- /tmp/ijdas-key

**ERROR: ijdass10033: The evaluation period passed.
Interstage Application Server cannot be used. (Interstage Java EE)
Please buy the product version when continuously using it.****Explanation**

The Interstage Java EE evaluation period has expired.

User Action

Purchase the product.

13.16 Messages that Contain "IJINIT" in the Message ID

13.16.1 IJINIT0000 to IJINIT0999

INFO: ISJEE_IJINIT0001: ijinit executed successfully.**Explanation**

Execution of the initialization command succeeded.

ERROR: ISJEE_IJINIT0002: Failed to get the common Java information. func=isinsac errno={0}**Variable Information**

{0}: Internal information

Explanation

Fetch processing failed for the Java install information.

System Action

Processing is interrupted.

User Action

There might be insufficient system memory. Stop unnecessary services. If required, enlarge system memory.

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ISJEE_IJINIT0003: Required package is not installed.

Explanation

The Java function is not installed.

System Action

Processing is interrupted.

User Action

Install the Java function.

ERROR: ISJEE_IJINIT0004: The Interstage Java EE DAS service has not been stopped.

Explanation

The Interstage Java EE DAS service has not been stopped.

System Action

Processing is interrupted.

User Action

Stop the Interstage Java EE DAS service.

ERROR: ISJEE_IJINIT0005: The Interstage Java EE Node Agent service has not been stopped.

Explanation

The Interstage Java EE Node Agent service has not been stopped.

System Action

Processing is interrupted.

User Action

Stop the Interstage Java EE Node Agent service.

ERROR: ISJEE_IJINIT0006: The Message Queue Broker has not been stopped.

Explanation

The message broker has not been stopped.

System Action

Processing is interrupted.

User Action

Stop the message broker.

Windows32/64

The initialization command does not check activation of the process below. Stop the process before executing the initialization command.

- A message broker started by a method other than service activation

ERROR: ISJEE_IJINIT0100: There are no permissions for executing the command.

Explanation

There is no execution permission.

System Action

Processing is interrupted.

User Action

Windows32/64

A user who has administrator permission must execute the command.

Solaris32/64 Linux32/64

A root user must execute the command.

ERROR: ISJEE_IJINIT0200: The Java EE initialization configuration file was not found. path='{0}'

Variable Information

{0}: Path of Java EE initialization configuration file

Explanation

The Java EE initialization configuration file was not found.

System Action

Processing is interrupted.

User Action

Specify the correct Java EE initialization configuration file path.

ERROR: ISJEE_IJINIT0201: Failed to load resources from Java EE initialization configuration file. path='{0}'

Variable Information

{0}: Path of Java EE initialization configuration file

Explanation

Read failed for the Java EE initialization configuration file.

System Action

Processing is interrupted.

User Action

Use a Java EE initialization configuration file in the correct format.

For details on the format of the Java EE initialization configuration file, refer to "ijinit".

ERROR: ISJEE_IJINIT0300: Invalid value. key='{0}' value='{1}'

Variable Information

{0}: Item name (option name or name of item in the Java EE initialization configuration file)

{1}: Entered value (see **note**)

Note: If multibyte characters are specified in the Java EE initialization configuration file value, then they might not be properly displayed in the variable information. Do not specify multibyte characters in the Java EE initialization configuration file value.

Explanation

The item value is invalid.

System Action

Processing is interrupted.

User Action

Specify a valid value.

For details on the item name output and the values that can be specified, refer to "ijinit".

ERROR: ISJEE_IJINIT0301: Invalid value. key='{0}'

Variable Information

{0}: Item name (option name or name of item in the Java EE initialization configuration file)

Explanation

The item value is invalid.

System Action

Processing is interrupted.

User Action

Specify a valid value.

- If "ADMIN_PASSWORD" is output as the item name:
 - Specify a character string as shown below for the administrator password:
 - Number of characters: 8 to 20
 - Characters that can be specified: ASCII characters other than alphanumeric symbols (0x21-0x7e), blanks, and control codes
 - If the "-y" option is specified, then the password is not queried.
 - Use the "-file" option to specify the Java EE initialization configuration file that defined the ADMIN_PASSWORD item.
- If a character string that does not follow the rules above is output as the item name:
 - For details on the item name output and the values that can be specified, refer to "ijinit".

ERROR: ISJEE_IJINIT0302: Invalid length. key='{0}' value='{1}'

Variable Information

{0}: Item name (option name or name of item in the Java EE initialization configuration file)

{1}: Entered value (see **note**)

Note: If multibyte characters are specified in the Java EE initialization configuration file value, then they might not be properly displayed in the variable information. Do not specify multibyte characters in the Java EE initialization configuration file value.

Explanation

The character string length of the item value is invalid.

System Action

Processing is interrupted.

User Action

Specify a value with a valid length.

For details on the item name output and the string lengths that can be specified, refer to "ijinit".

ERROR: ISJEE_IJINIT0400: Invalid port number. key='{0}' value='{1}'

Variable Information

{0}: Item name (option name or name of item in the Java EE initialization configuration file)

{1}: Entered value (see **note**)

Note: If multibyte characters are specified in the Java EE initialization configuration file value, then they might not be properly displayed in the variable information. Do not specify multibyte characters in the Java EE initialization configuration file value.

Explanation

The specified port number is invalid.

System Action

Processing is interrupted.

User Action

Specify a valid value.

For details on the item name output and the values that can be specified, refer to "ijinit".

ERROR: ISJEE_IJINIT0401: Used port number. key='{0}' value='{1}'

Variable Information

{0}: Item name (option name or name of item in the Java EE initialization configuration file)

{1}: Entered value (see **note**)

Note: If multibyte characters are specified in the Java EE initialization configuration file value, then they might not be properly displayed in the variable information. Do not specify multibyte characters in the Java EE initialization configuration file value.

Explanation

The specified port number is in use.

System Action

Processing is interrupted.

User Action

Make sure that the port is not in use by the netstat or similar commands. If it is, then specify a different port number.

For details on the item name output and the values that can be specified, refer to "ijinit".

For details on how to specify a port number other than the default value, refer to "Port tuning".

The IP address of the local host set in the hosts file may be incorrect. Set the correct value in the hosts file, and then reexecute the operation.

ERROR: ISJEE_IJINIT0402: Duplicated port number. keys='{0}' value='{1}'

Variable Information

{0}: Item name that duplicates the value (option name or name of item in the Java EE initialization configuration file)

{1}: Entered value (see **note**)

Note: If multibyte characters are specified in the Java EE initialization configuration file value, then they might not be properly displayed in the variable information. Do not specify multibyte characters in the Java EE initialization configuration file value.

Explanation

The specified port number is already specified for a different Java EE function.

System Action

Processing is interrupted.

User Action

Specify a port number that does not duplicate the port number of other functions.

For details on the item name output and the values that can be specified, refer to "ijinit". Note that the Java EE initialization configuration file settings output are the ones that use the default values.

For details on how to specify a port number other than the default value, refer to "Port tuning".

ERROR: ISJEE_IJINIT0500: The specified Java version is not supported. value='{0}'

Variable Information

{0}: Entered value (see **note**)

Note: If multibyte characters are specified in the Java EE initialization configuration file value, then they might not be properly displayed in the variable information. Do not specify multibyte characters in the Java EE initialization configuration file value.

Explanation

The specified Java type or version is not supported.

System Action

Processing is interrupted.

User Action

- Install Java features which match the specified type or version.
- Specify a Java type or version which supports the Java EE features.

For the values that can be specified, refer to "ijinit".

ERROR: ISJEE_IJINIT0501: This edition is not supported.

Explanation

This edition is not supported.

System Action

Processing is interrupted.

User Action

Only Enterprise Edition can be specified for the 'existing' option. To perform cluster service linkage, Enterprise Edition must be installed.

INFO: ISJEE_IJINIT0502: This option is not supported. option='{0}'

Variable Information

{0}: Option

Explanation

This option is not supported.

System Action

Processing continues.

User Action

No action is required - the option will be ignored and processing will continue.

ERROR: ISJEE_IJINIT0600: The password does not match.

Explanation

The entered password does not match.

System Action

Processing is interrupted.

User Action

Make the retry entry match the initial entry.

ERROR: ISJEE_IJINIT0700: The Java EE common directory is not empty.

Explanation

The specified directory in the Java EE common directory is not empty.

System Action

Processing is interrupted.

User Action

To change a directory from an existing Java EE common directory, either make the specified directory empty, or specify the path of a newly created directory.

ERROR: ISJEE_IJINIT0701: The Java EE common directory is invalid. detail='{0}' path='{1}'

Variable Information

{0}: Detailed reason

{1}: Java EE common directory path (see [note](#))

Note: If multibyte characters are specified in the Java EE initialization configuration file value, then they might not be properly displayed in the variable information. Do not specify multibyte characters in the Java EE initialization configuration file value.

Explanation

The Java EE common directory is invalid.

System Action

Processing is interrupted.

User Action

- If the detailed reason is "not absolute":
 - An absolute path was not specified. Specify an absolute path.
- **Windows32/64**
 - If the Java EE common directory is created immediately under a drive value, specify a character string to which "\" is added.
 - If created immediately under the D drive, specify "D:\".
- If the detailed reason is "not a directory":
 - The specified path might not be a directory. Specify a directory.
- If the detailed reason is "not writable":
 - There might not be write permission for the specified path. Assign write permission.

- If the detailed reason is "does not exist":

The parent directory of the specified path might not exist. Create the parent directory.

- If the detailed reason is "The interstage directory does not exist." or "The local non-existing directory was specified.":

With cluster linkage (-existing option specified), the specified directory might not be Java EE common directory. Specify the Java EE common directory on the cluster function common drive.

- If the detailed reason is a character string other than the above:

If the Interstage install directory includes blanks and you want to change the Java EE common directory to the default path, do not specify the -commdir option and do not specify COMMON_DIR in the Java EE initialization configuration file.

ERROR: ISJEE_IJINIT0702: An error occurred during the initialization of the Java EE common directory.**Explanation**

Initialization of the Java EE common directory failed.

System Action

Processing is interrupted.

User Action

- Deletion of the existing Java EE common directory might have failed. Check whether files in the directory are being used by an editor or other process. If they are, then wait until usage stops and execute the initialization command again.
- Follow the action advised in "Troubleshooting" > "[14.1.1 Abnormalities Relating to the init Command](#)".
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ISJEE_IJINIT0703: Failed to delete file. file='{0}'**Variable Information**

{0}: File path

Explanation

Deletion failed.

System Action

Processing is interrupted.

User Action

- Check whether file is being used by an editor or other process. If it is, then wait until usage stops and execute the initialization command again.
- Refer to "[14.1.1 Abnormalities Relating to the init Command](#)" and take action.

13.16.2 IJINIT1000 to IJINIT1999

ERROR: ISJEE_IJINIT1000: Failed to setup interstage. code={0}**Variable Information**

{0}: Internal information

Explanation

Java EE function setup failed.

System Action

Processing is interrupted.

User Action

- Deletion of the existing Java EE common directory might have failed. Check whether files in the directory are being used by an editor or other process. If they are, then wait until usage stops and execute the initialization command again.
- Follow the action advised in "Troubleshooting" > "[14.1.1 Abnormalities Relating to the init Command](#)".
- Execute the initialization command again.
- Reboot the system and execute the initialization command again.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ISJEE_IJINIT1001: Failed to change service admin user. code={0}

Variable Information

{0}: Internal information

Explanation

Java EE function setup failed.

System Action

Processing is interrupted.

User Action

- Execute the initialization command again.
- Reboot the system and then execute the initialization command again.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ISJEE_IJINIT1002: Failed to call ijwscinit. code={0}

Variable Information

{0}: Internal information

Explanation

Java EE function setup failed.

System Action

Processing is interrupted.

User Action

- Execute the initialization command again.
- Reboot the system and then execute the initialization command again.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ISJEE_IJINIT1003: Failed to call ijsetsecuritymode. code={0}

Variable Information

{0}: Internal information

Explanation

Java EE function setup failed.

System Action

Processing is interrupted.

User Action

- Execute the initialization command again.
- Reboot the system and then execute the initialization command again.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

13.17 Messages that Contain "ijmq" in the Message ID

13.17.1 ijmqa10000 to ijmqa19999

INFO: ijmqa10001: Starting {0}

Variable Information

{0}: Command line that started the message broker

Explanation

The message broker has started.

INFO: ijmqa10002: Shutting down service by executing {0}

Variable Information

{0}: Command line that stopped the message broker

Explanation

The message broker is stopping.

13.17.2 ijmqa20000 to ijmqa29999

ERROR: ijmqa20001: StartServiceCtrlDispatcher failed: {0} {1}

Variable Information

{0}: Error code

{1}: Error message

Explanation

The message broker failed to start.

System Action

Processing is interrupted.

User Action

Refer to the error message ({1}) and fix the problem.

After the problem is fixed, execute start again.

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijmqa20002: Couldn't find IMQ_VARHOME '{0}': {1} {2}

Variable Information

{0}: Directory path fetched as the value of the internal environment variable (IMQ_VARHOME)

{1}: Error code

{2}: Error message

Explanation

The directory fetched as the value of the internal environment variable (IMQ_VARHOME) does not exist. Possible causes are as follows:

- A file and directory that are essential when starting the message broker do not exist.
- A system error occurred.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Install Interstage Java EE again.
- If the same problem occurs after taking the above action, follow the action advised in the error message ({2}).

ERROR: ijmq20003: Could not set IMQ_HOME to '{0}': {1} {2}

Variable Information

{0}: Value attempted to be set in the internal environment variable (IMQ_HOME)
{1}: Error code
{2}: Error message

Explanation

The value could not be set in the internal environment variable (IMQ_HOME)

System Action

Processing is interrupted.

User Action

Refer to the error message ({2}) and fix the problem.

After the problem is fixed, execute the setting again.

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijmq20004: Invalid Java Runtime '{0}': {1} {2}

Variable Information

{0}: Directory path set as the Java VM path
{1}: Error code
{2}: Error message

Explanation

The directory set as the Java VM path does not exist.

Possible causes are as follows:

- A file and directory that are essential when starting the message broker do not exist.
- A system error occurred.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Install Interstage Java EE again.
- If the same problem occurs after taking the above action, follow the action advised in the error message ({2}).

ERROR: ijm20005: Unable to change working directory to {0}: {1} {2}**Variable Information**

{0}: Directory path of change destination
{1}: Error code
{2}: Error message

Explanation

Changing the work directory failed because the directory created when Interstage Java EE was installed does not exist.
Alternatively, a system error occurred.

System Action

Processing is interrupted.

User Action

Install Interstage Java EE again.
If the same problem occurs after taking the above action, follow the action advised in the error message ({2}).

ERROR: ijm20006: Could not get a temp file: {0} {1}**Variable Information**

{0}: Error code
{1}: Error message

Explanation

Creation of an internal file failed.

System Action

Processing is interrupted.

User Action

Follow the action advised in the error message ({1}).
If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijm20007: Could not open admin key file {0}: {1} {2}**Variable Information**

{0}: Internal file path
{1}: Error code
{2}: Error message

Explanation

Creation of an internal file failed.

System Action

Processing is interrupted.

User Action

Follow the action advised in the error message ({2}).
If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijm20008: Could not write to admin key file {0}: {1} {2}**Variable Information**

{0}: Internal file path
{1}: Error code
{2}: Error message

Explanation

Write to an internal file failed.

System Action

Processing is interrupted.

User Action

Follow the action advised in the error message ({2}).

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijm20009: Stopping service failed. Could not execute {0}: {1} {2}**Variable Information**

{0}: Command line that stops the message broker
{1}: Error code
{2}: Error message

Explanation

Message broker stop processing failed because the command could not be executed.

System Action

Processing is interrupted.

User Action

Refer to the error message ({2}) and fix the problem.

After the problem is fixed, execute stop again.

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijm20010: Unable to get child's exit code.: {0} {1}**Variable Information**

{0}: Error code
{1}: Error message

Explanation

Fetching the child process return value failed because a system error occurred.

System Action

Processing is interrupted.

User Action

Follow the action advised in the error message ({1}).

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijm20011: SetServiceStatus: {0} {1}

Variable Information

{0}: Error code
{1}: Error message

Explanation

Changing the message broker service status failed.

System Action

Processing is interrupted.

User Action

Follow the action advised in the error message ({1}).

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijmq20012: Starting service failed. Could not execute {0}: {1} {2}

Variable Information

{0}: Command line that starts the message broker
{1}: Error code
{2}: Error message

Explanation

Message broker start processing failed because the command could not be executed.

System Action

Processing is interrupted.

User Action

Refer to the error message ({2}) and fix the problem.

After the problem is fixed, execute start again.

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijmq20013: Please specify a Java runtime using the IMQ_JAVAHOME environment variable, or -javahome command line option: {0} {1}

Variable Information

{0}: Error code
{1}: Error message

Explanation

Setting the Java VM path failed.

Possible causes are as follows:

- A file and directory that are essential when starting the message broker do not exist.
- A system error occurred.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Install Interstage Java EE again.

- If the same problem occurs after taking the above action, follow the action advised in the error message ({1}).

ERROR: ijmq20014: Allocation of memory failed.**Explanation**

A memory shortage occurred.

System Action

Processing is interrupted.

User Action

Check whether there is enough memory for execution. If required, re-estimate the amount of memory required to execute other applications that run on the same machine.

ERROR: ijmq20015: An error occurred in the system function. Reason=({0},{1})**Variable Information**

{0}: Name of system function for which error occurred
{1}: Error number posted from the system function

Explanation

An error occurred for the system function {0}.

System Action

Processing is interrupted.

User Action

Use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijmq20016: MQ service couldn't read configuration file {0}. Reason=({1})**Variable Information**

{0}: File name
{1}: Error detail

Explanation

Configuration file read processing failed.

System Action

Processing is interrupted.

User Action

Take the following actions:

- A user who has administrator permission must execute the command.
- Check if the file in the variable information {0} exists. If it does not, then the operating environment is corrupted. Execute the Java EE operating environment initialization command (ijinit) to recover the operating environment.

ERROR: ijmq20017: Failed to start Message Queue Service.**Explanation**

Message broker start processing failed.

System Action

Processing is interrupted.

User Action

Take the following actions and restart message broker:

- If a message that contains "ijmq" or "IJMQ" was output prior to this message:

Refer to the message to check the cause of the failure and remove the cause of the failure.

- If a message that contains "ijmq" or "IJMQ" was not output prior to this message:

Refer to the messages output to the message broker log to check the cause of the failure and remove the cause of the failure.

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijmq20018: There are no permissions for executing the command.

Explanation

The user does not have execution privileges.

System Action

The operation will fail.

User Action

Execute the command again as a user with administrator permissions.

ERROR: ijmq20019: Cannot access drive {0} from {1}.

Variable Information

{0}: Drive name

{1}: Resource management directory of the message broker

Explanation

The drive {0} does not exist. The message broker on the cluster environment standby node may have been started.

System Action

Processing is interrupted.

User Action

Do not start the message broker on the standby node.

ERROR: ijmq20020: Cannot create directory {0} in path {1}

Variable Information

{0}: Directory to be created

{1}: Resource management directory of the message broker

Explanation

Failed to create the directory.

System Action

Processing is interrupted.

User Action

Use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijmq20021: Unable to make directory to {0}

Variable Information

{0}: Resource management directory of the message broker

Explanation

Failed to create the directory. The message broker on the cluster environment standby node may have been started.

System Action

Processing is interrupted.

User Action

Do not start the message broker on the standby node.

ERROR: ijm20022: Couldn't find IMQ_ETCHOME '{0}'

Variable Information

{0}: Value of IMQ_ETCHOME

Explanation

The directory {0} does not exist. Possible causes are as follows:

- Files and directories required to start the message broker do not exist.
- A system error occurred.

System Action

Processing is interrupted.

User Action

Use the iscollectinfo command to collect investigation information, and then contact your service engineer.

13.18 Messages that Contain "IJMQ" in the Message ID

13.18.1 IJMQ_1000 to IJMQ_1099

ERROR: IJMQ_1001: Received out of memory error trying to shutdown

Explanation

The message broker stopped because the Java heap is too small.

System Action

Processing is continued.

User Action

Follow the action advised in the message starting with IJMQ output immediately before this one.

WARNING: IJMQ_1002: Received Out Of Memory Error [{0}]

Explanation

The Java heap is too small.

System Action

Processing is continued.

User Action

Follow the action advised in the message starting with IJMQ output immediately before this one.

WARNING: IJMQ_1003: {0}:{1}: found a corrupted message at vrecord({2}), a message might be lost

Variable Information

{0}: Physical storage destination type (T:Topic/Q:Queue)
{1}: Physical storage destination name
{2}: Detail information

Explanation

An invalid message is stored in the non-volatile information at the physical storage destination {0} and {1}. The message might have failed.

System Action

Processing is continued.

User Action

Use the imqcmd command list dst subcommand to check whether the message failed - if it did, then send it again if necessary.

WARNING: IJMQ_1004: Timer shutting down

Explanation

The internal timer is stopping.

System Action

Processing is continued.

User Action

- The internal timer is stopping.
- If message IJMQ_S3019 was output before this one, then follow the action advised in it.
 - In other cases, restart the message broker.

INFO: IJMQ_1005: Low memory

Explanation

The Java heap is too small.

INFO: IJMQ_1006: An old format password file was used. Level={0}

Variable Information

{0}: Password file level

Explanation

An old format password file was used - the relationship between the password file level and the password file format is as follows:

Password file Level	Interstage Application Server version for the password file format	Encryption cipher
1	V9.2-V9.3	MD5

ERROR: IJMQ_1007: Failed to read password file: {0}

Variable Information

{0}: Password file

Explanation

Failed to read the password file.

System Action

Processing is interrupted.

User Action

Use the `iscollectinfo` command to collect investigation information, and then contact your service engineer.

ERROR: IJMQ_1008: An error occurred configuring the logging system: {0} {1}

Variable Information

{0}: Access log
{1}: Cause of the error

Explanation

Failed to configure the access log.

System Action

Processing is interrupted.

User Action

Use the `iscollectinfo` command to collect investigation information, and then contact your service engineer.

ERROR: IJMQ_1009: Attempted function not supported.

Explanation

The JMS feature cannot be used in this edition.

System Action

Processing is interrupted.

User Action

Either use another feature or purchasing a more recent edition.

ERROR: IJMQ_1010: Failed to read a file: {0} {1}

Variable Information

{0}: File
{1}: Cause of the error

Explanation

Failed to read the file.

System Action

Processing is interrupted.

User Action

Use the `iscollectinfo` command to collect investigation information, and then contact your service engineer.

13.18.2 IJMQ_A3000 to IJMQ_A3099

IJMQ_A3001: Unrecognized command line option: {0}.

Variable Information

{0}: Option name

Explanation

Command execution failed because an invalid option was specified.

System Action

Processing is interrupted.

User Action

Specify the correct option and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3004: An argument was expected for option: {0}.

Variable Information

{0}: Option name

Explanation

Command execution failed because an option parameter was not specified.

System Action

Processing is interrupted.

User Action

Specify the correct option parameter and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3005: Bad name value pair specified ({0}) for option: {1}.

Variable Information

{0}: Parameter

{1}: Option name

Explanation

Command execution failed because an invalid broker property was specified.

System Action

Processing is interrupted.

User Action

Specify the parameter shown in variable information {0} in the format "name=value", and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3072: Invalid property value: '{0}'.

Variable Information

{0}: Parameter

Explanation

An invalid parameter was set.

System Action

Error information is posted.

User Action

Refer to the output parameter information {0} and correct it.

13.18.3 IJMQ_A3100 to IJMQ_A3199

IJMQ_A3100: The target name must be specified with the {0} option.

Variable Information

{0}: Option name

Explanation

Command execution failed because a mandatory option was not specified.

System Action

Processing is interrupted.

User Action

Specify the option shown in variable information {0} and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3101: Bad argument specified for the {0} command: {1}

Variable Information

{0}: Sub command

{1}: Sub command parameter

Explanation

Command execution failed because an invalid subcommand was specified.

System Action

Processing is interrupted.

User Action

Specify the correct subcommand and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3103: The destination name needs to be specified with the {0} option.

Variable Information

{0}: Option name

Explanation

Command execution failed because a mandatory option was not specified.

System Action

Processing is interrupted.

User Action

Specify the option shown in variable information {0} and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3104: The target attributes need to be specified with the {0} option.

Variable Information

{0}: Option name

Explanation

Command execution failed because a mandatory option was not specified.

System Action

Processing is interrupted.

User Action

Specify the option shown in variable information {0} and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3105: The destination type needs to be specified with the {0} option.

Variable Information

{0}: Option name

Explanation

Command execution failed because a mandatory option was not specified.

System Action

Processing is interrupted.

User Action

Specify the option shown in variable information {0} and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3107: The value '{0}' for the attribute {1} is invalid.

Variable Information

{0}: Broker property value

{1}: Broker property name

Explanation

Command execution failed because an invalid broker property value was specified.

System Action

Processing is interrupted.

User Action

Specify the correct value for the broker property value shown in variable information {0} and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3108: The destination type '{0}' is not valid.

Variable Information

{0}: Physical storage destination type

Explanation

Command execution failed because an invalid physical storage destination type was specified.

System Action

Processing is interrupted.

User Action

Specify "t" or "q" for the type of the physical storage destination shown in variable information {0}, and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3109: The '{0}' service cannot be paused.

Variable Information

{0}: Service name

Explanation

The service {0} cannot be paused.

System Action

Processing is interrupted.

User Action

Since the specified service cannot be paused, check whether the value of variable information {0} is correct.

For details on the command, refer to "imqcmd".

IJMQ_A3110: The '{0}' service cannot be resume.

Variable Information

{0}: Service name

Explanation

Service {0} cannot be reopened.

System Action

Processing is interrupted.

User Action

Since the specified service cannot be reopened, check whether the value of variable information {0} is correct.

For details on the command, refer to "imqcmd".

IJMQ_A3111: The destination {0} does not exist or its type is not topic.

Variable Information

{0}: Physical storage destination name

Explanation

Command execution failed because an invalid physical storage destination name was specified.

System Action

Processing is interrupted.

User Action

Check whether the specified physical storage destination type is Topic and whether the physical storage destination shown in variable information {0} exists.

For details on the command, refer to "imqcmd".

IJMQ_A3112: The client ID must be specified with the {0} option.

Variable Information

{0}: Option name

Explanation

Command execution failed because a mandatory option was not specified.

System Action

Processing is interrupted.

User Action

Specify the option shown in variable information {0} and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3114: The value {0} for the attribute {1} is invalid.

Variable Information

{0}: Broker property value

{1}: Broker property name

Explanation

Command execution failed because an invalid broker property value was specified.

System Action

Processing is interrupted.

User Action

Specify the correct value for the broker property value shown in variable information {0} and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3115: The value {0} for the attribute {1} is invalid.

Variable Information

{0}: Broker property value

{1}: Broker property name

Explanation

Command execution failed because an invalid broker property value was specified.

System Action

Processing is interrupted.

User Action

Specify the correct value for the broker property value shown in variable information {0} and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3117: The value {0} for the attribute {1} is invalid.

Variable Information

{0}: Broker property value

{1}: Broker property name

Explanation

Command execution failed because an invalid broker property value was specified.

System Action

Processing is interrupted.

User Action

Specify the correct value for the broker property value shown in variable information {0} and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3118: The value {0} specified for the receive timeout is invalid.

Variable Information

{0}: Management reception timeout time

Explanation

Command execution failed because an invalid management reception timeout time was specified.

System Action

Processing is interrupted.

User Action

Specify the correct value for the management reception timeout time shown in variable information {0} and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3119: The value {0} for the pause type is invalid.

Variable Information

{0}: Physical storage destination pause type

Explanation

Command execution failed because an invalid physical storage destination stop type was specified.

System Action

Processing is interrupted.

User Action

Specify one of the following as the physical storage destination pause type shown in variable information {0} and then execute the command again.

- PRODUCERS
- CONSUMERS
- ALL

For details on the command, refer to "imqcmd".

IJMQ_A3129: Invalid attribute specified: {0}

Variable Information

{0}: Broker property name

Explanation

Command execution failed because an invalid broker property name was specified.

System Action

Processing is interrupted.

User Action

Specify the correct value for the broker property name shown in variable information {0} and then execute the command again.
For details on the command, refer to "imqcmd".

IJMQ_A3158: The value {0} specified for the number of retries is invalid.

Variable Information

{0}: Management retry count

Explanation

Command execution failed because an invalid number of management retries was specified.

System Action

Processing is interrupted.

User Action

Specify the correct value for the management retry count shown in variable information {0} and then execute the command again.
For details on the command, refer to "imqcmd".

IJMQ_A3160: The value {0} for the attribute {1} is invalid.

Variable Information

{0}: Broker property value
{1}: Broker property name

Explanation

Command execution failed because an invalid broker property value was specified.

System Action

Processing is interrupted.

User Action

Specify the correct value for the broker property value shown in variable information {0} and then execute the command again.
For details on the command, refer to "imqcmd".

IJMQ_A3161: Failed to read password in passfile:{0}

Variable Information

{0}: Cause of the error

Explanation

Command execution failed because reading the password file failed.

System Action

Processing is interrupted.

User Action

Fix the error cause shown in the variable information {0} and then execute the command again.
For details on the command, refer to "imqcmd".

IJMQ_A3165: The value {0} specified for the number of seconds is invalid.

Variable Information

{0}: Broker stop time

Explanation

Command execution failed because an invalid broker stop time was specified.

System Action

Processing is interrupted.

User Action

Specify the correct value for the broker stop time shown in variable information {0} and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_A3166: The value {0} for the broker reset type is invalid.

Variable Information

{0}: Message broker reset type

Explanation

Command execution failed because an invalid message broker reset type was specified.

System Action

Processing is interrupted.

User Action

Specify one of the following as the message broker reset type shown in variable information {0} and then execute the command again.

- METRICS
- ALL

For details on the command, refer to "imqcmd".

IJMQ_A3167: Bad broker address specified:{0}

Variable Information

{0}: Broker activation port number

Explanation

Command execution failed because an invalid port number was specified.

System Action

Processing is interrupted.

User Action

Specify a value between 1 and 65535 for the port number shown in variable information {0} and then execute the command again.

For details on the command, refer to "imqcmd".

13.18.4 IJMQ_B0000 to IJMQ_B0099

IJMQ_B0009: Invalid value for -reset.

Explanation

Command execution failed because an invalid parameter was specified for the -reset option.

System Action

Processing is interrupted.

User Action

Specify one of the following for the -reset parameter and then execute the command again.

- store
- messages
- durables
- props

For details on the command, refer to "imqbrokerd".

IJMQ_B0018: Running low on memory while allocating space for a message header, system will attempt to recover: {0}

Variable Information

{0}: Detail information

Explanation

Message construction failed due to insufficient Java heap, and the message broker will retry.

System Action

Processing is continued.

User Action

If this message is output frequently, then it means that the Java heap used by the message broker is insufficient. Stop the message broker, then refer to "[14.8 Abnormalities in JMS Development/Operations](#)" > "[Action when the Message Broker Java Heap is too Small](#)" and take the action advised.

IJMQ_B0028: Invalid value for -remove.

Explanation

Command execution failed because an invalid parameter was specified for the -remove option.

System Action

Processing is interrupted.

User Action

Specify instance for the -remove parameter and then execute the command again.

For details on the command, refer to "imqbrokerd".

IJMQ_B0053: Message on destination {0} Expired: expiration time {1}, arrival time {2}, JMSTimestamp {3}

Variable Information

{0}: Physical storage destination name

{1}: Expiration time

{2}: Message arrival time

{3}: Message send time

Explanation

The message expired.

System Action

Processing is continued.

IJMQ_B0054: Limit exceeded on Destination {0}: message limit (maxNumMsgs)={1}; bytes limit (maxTotalMsgBytes)={2}

Variable Information

{0}: Physical storage destination name
{1}: Maximum number of messages
{2}: Maximum total size of messages

Explanation

The maximum number of messages that can be stored in the physical storage destination of variable information or the maximum total size of messages was exceeded.

System Action

Processing is continued.

IJMQ_B0055: Message on destination {0}:{1} was Undeliverable

Variable Information

{0}: Physical storage destination type (T:Topic Q:Queue)
{1}: Physical storage destination name

Explanation

The message could not be delivered.

System Action

Processing is continued.

User Action

Message ISJEE_MQJMSRA_MR2001 was output to the server log of the IJServer cluster which the Message-driven Bean application was deployed to. Check the message output before or after this one, confirm the cause of the error which occurred in the Message-driven Bean application, then review the application processing.

IJMQ_B0059: Client closed the connection

Explanation

The connection with the message broker was closed.

System Action

Processing is continued.

IJMQ_B0060: Service shutting down

Explanation

The service was stopped.

System Action

Processing is continued.

IJMQ_B0061: Client exited without closing connections

Explanation

The connection to the message broker was broken.

System Action

Processing is continued.

IJMQ_B0065: Message on destination {0} expired before arrival: expiration time {1}, arrival time {2}, JMSTimestamp {3}

Variable Information

{0}: Physical storage destination name
{1}: Expiration time
{2}: Message arrival time
{3}: Message send time

Explanation

The message expired before being stored at the physical storage destination.

System Action

Processing is continued.

IJMQ_B0080: Running low on memory while portmapper service processing client connection, system will attempt to recover

Explanation

The connection was cut because the Java heap is too small.

System Action

Processing is continued.

User Action

The Java heap used by the message broker is too small. Stop the message broker, and then take the action advised in "[14.8 Abnormalities in JMS Development/Operations](#)" > "[Action when the Message Broker Java Heap is too Small](#)".

IJMQ_B0081: Running low on memory in portmapper service, broker will attempt to restart

Explanation

The message broker is being restarted because the Java heap is too small.

System Action

Processing is continued.

User Action

Follow the action advised in the message starting with IJMQ output immediately before this one.

13.18.5 IJMQ_B1000 to IJMQ_B1099

INFO: IJMQ_B1002: An existing property file for {0} was not found, no stored properties will be loaded

Variable Information

{0}: Message broker name

Explanation

Message broker definition information is being created.

System Action

Processing is continued.

INFO: IJMQ_B1004: Starting the {0} service using {1} with min threads {2} and max threads of {3}

Variable Information

{0}: Service name
{1}: Protocol information

{2}: Minimum number of threads
{3}: Maximum number of threads

Explanation

The service shown in the variable information {0} was started.

INFO: IJMQ_B1007: Stopping Service {0} with protocol {1}

Variable Information

{0}: Service name
{1}: Protocol information

Explanation

The service shown in the variable information {0} was stopped.

INFO: IJMQ_B1013: Auto Creation of Queues is enabled

Explanation

The function that automatically generates physical storage destinations is enabled.

INFO: IJMQ_B1033: A client on connection {0}@{1} tried to use client id {2} which is already in use

Variable Information

{0}: User name connected to the message broker
{1}: Connection destination information
{2}: Client ID

Explanation

The client ID {2} is already in use.

System Action

Processing is continued.

User Action

Specify a different client ID.

INFO: IJMQ_B1034: Destination {0} is being purged using a criteria of {1}

Variable Information

{0}: Physical storage destination name
{1}: Cause of issue

Explanation

Messages are being discarded from the physical storage destination shown in the variable information {0}.

System Action

Processing is continued.

INFO: IJMQ_B1035: Delete all messages in the destination

Explanation

All messages were discarded.

System Action

Processing is continued.

INFO: IJMQ_B1039: Broker "{0}@{1}:{2}" ready.

Variable Information

{0}: Message broker instance name

{1}: Message broker host name

{2}: Message broker port number

Explanation

The message broker was started.

INFO: IJMQ_B1041: Cluster initialization successful.

Explanation

Broker initialization succeeded.

INFO: IJMQ_B1047: Shutting down broker...

Explanation

The message broker is being stopped.

INFO: IJMQ_B1048: Shutdown of broker complete.

Explanation

The message broker has stopped.

INFO: IJMQ_B1055: Arguments: {0}

Variable Information

{0}: Message broker start option

Explanation

The message broker is being started using the start option shown in the variable information {0}.

INFO: IJMQ_B1059: Resetting persistent store...

Explanation

Persistent information is being initialized.

System Action

Processing is continued.

INFO: IJMQ_B1060: Loading persistent data...

Explanation

Persistent data is being read.

INFO: IJMQ_B1064: Broker restarting.

Explanation

The broker is restarting.

System Action

Processing is continued.

INFO: IJMQ_B1065: Accepting: {0}->{1}. Count: service={2} broker={3}

Variable Information

{0}: Client information
{1}: Service information
{2}: Number of connections for variable information {1}
{3}: Number of broker connections

Explanation

The connection request was accepted.

INFO: IJMQ_B1066: Closing: {0}->{1} because "{2}". Count: service={3} broker={4}

Variable Information

{0}: Client information
{1}: Service information
{2}: Reason for connection closing
{3}: Number of connections for variable information {1}
{4}: Number of broker connections

Explanation

The connection was closed.

INFO: IJMQ_B1077: Broadcast good-bye to all connections ...

Explanation

Disconnection was notified to all connections.

INFO: IJMQ_B1078: Flushing good-bye messages ...

Explanation

The disconnection message was posted.

INFO: IJMQ_B1079: Found {0} transactions. {1} will be rolled back.

Variable Information

{0}: Number of transactions
{1}: Number of uncommitted data items

Explanation

Transaction data was found.

INFO: IJMQ_B1080: Of {0} transactions, {1} are in PREPARED state, {2} are in COMMITTED state

Variable Information

{0}: Number of transactions
{1}: Number of data items currently in transactions
{2}: Number of committed data items

Explanation

Transaction data details are displayed.

INFO: IJMQ_B1083: Resetting all messages...

Explanation

All messages are being initialized.

System Action

Processing is continued.

INFO: IJMQ_B1084: Resetting all durable subscribers...

Explanation

All durable subscribers are being initialized.

System Action

Processing is continued.

INFO: IJMQ_B1085: Loading other persistent data...

Explanation

Persistent information is being read.

System Action

Processing is continued.

INFO: IJMQ_B1086: Java Heap Size: max={0}k, current={1}k

Variable Information

{0}: Maximum heap size [k]

{1}: Current heap size [k]

Explanation

The Java heap size shown in the variable information is being used.

INFO: IJMQ_B1088: Entering Memory State {0} from previous state {1} - allocated memory is {2}K, {3}% of total memory used

Variable Information

{0}: Level of the Java heap busy rate of the message broker

{1}: Level of the Java heap busy rate of the message broker before this message was output

{2}: Java heap size currently used by the message broker

{3}: Java heap busy rate of the message broker

Explanation

The level of the Java heap busy rate of the message broker has changed from {1} to {0}.

The following character strings, in order starting from the lowest busy rate, are output as the level of the Java heap busy rate:

- GREEN, YELLOW, ORANGE, RED

System Action

Processing is continued.

User Action

If RED is output in the variable information {0}, the Java heap used by the message broker is too small. After the message broker stops, take the action advised in "[14.8 Abnormalities in JMS Development/Operations](#)" > "[Action when the Message Broker Java Heap is too Small](#)".

INFO: IJMQ_B1089: In low memory condition, Broker is attempting to free up resources

Explanation

Unnecessary resources are being released because the Java heap used by the message broker has become small.

System Action

Processing is continued.

User Action

Follow the action advised in the User Action of Message IJMQ_B1088, which is output in the same time band as this message.

INFO: IJMQ_B1090: Update of Service {0} requested [port={1}, min={2}, max={3}]

Variable Information

{0}: Service name
{1}: Port number
{2}: Minimum number of threads
{3}: Maximum number of threads

Explanation

A broker stop request was accepted.

System Action

Processing is continued.

INFO: IJMQ_B1093: Shutdown requested by broker administrator

Explanation

A broker stop request was accepted.

System Action

Processing is continued.

INFO: IJMQ_B1094: Restart requested by broker administrator

Explanation

A broker restart request was accepted.

System Action

Processing is continued.

INFO: IJMQ_B1095: Removing persistent store...

Explanation

Persistent data is being deleted.

System Action

Processing is continued.

13.18.6 IJMQ_B1100 to IJMQ_B1199

INFO: IJMQ_B1122: Reconnecting client {0}

Variable Information

{0}: Connection ID

Explanation

The client application shown in the variable information {0} was reconnected to the message broker.

INFO: IJMQ_B1123: Compacting {0}

Variable Information

{0}: Physical storage destination name

Explanation

The physical storage destination shown in the variable information {0} is being compacted.

System Action

Processing is continued.

INFO: IJMQ_B1124: Pausing Service {0}

Variable Information

{0}: Service name

Explanation

The service shown in the variable information {0} is paused.

System Action

Processing is continued.

INFO: IJMQ_B1125: Pausing Destination {0}

Variable Information

{0}: Physical storage destination name

Explanation

The physical storage destination shown in the variable information {0} is paused.

System Action

Processing is continued.

IJMQ_B1126: Unable to paused unknown destination {0}:{1}

Variable Information

{0}: Physical storage destination type (topic/queue)

{1}: Physical storage destination name

Explanation

The specified physical storage destination does not exist.

System Action

Processing is continued.

User Action

Specify an existing physical storage destination, then execute the command again.

INFO: IJMQ_B1128: Resuming Service {0}

Variable Information

{0}: Service name

Explanation

The service shown in the variable information {0} is restarting.

System Action

Processing is continued.

INFO: IJMQ_B1129: Resuming Destination {0}

Variable Information

{0}: Physical storage destination name

Explanation

The service shown in the variable information {0} is restarting.

System Action

Processing is continued.

INFO: IJMQ_B1130: Destroying auto-created destination {0} inactive for {1} seconds

Variable Information

{0}: Physical storage destination name

{1}: Time inactive

Explanation

The automatically generated physical storage destination {0} was not used for {1} seconds, and will therefore be deleted.

INFO: IJMQ_B1131: Removed all Durable Consumers associated with Destination {0}. Reason: {1}

Variable Information

{0}: Physical storage destination name

{1}: Cause of issue

Explanation

All durable subscribers created at the physical storage destination shown in the variable information {0} were deleted.

System Action

Processing is continued.

INFO: IJMQ_B1132: Auto creating destination {0}

Variable Information

{0}: Physical storage destination name

Explanation

The physical storage destination shown in the variable information {0} was generated.

INFO: IJMQ_B1133: Backup consumer {0} has become active on destination {1}

Variable Information

{0}: Consumer ID

{1}: Physical storage destination name

Explanation

Queued consumers connected to the physical storage destination shown in the variable information {1} have become able to use the destination.

INFO: IJMQ_B1134: In-conflict clientID {0} is owned by local connection {1}@{2}

Variable Information

{0}: Client ID
{1}: User name connected to the message broker
{2}: Connection destination information

Explanation

The client ID {0} is already in use.

System Action

Processing is continued.

User Action

Follow the action advised in the message starting with IJMQ output immediately before this one.

INFO: IJMQ_B1135: In-conflict clientID {0} is owned by a connection on a remote broker

Variable Information

{0}: Client ID

Explanation

The client ID {0} is already in use.

System Action

Processing is continued.

User Action

Follow the action advised in the message starting with IJMQ output immediately before this one.

INFO: IJMQ_B1136: Processing stored transactions

Explanation

Transaction information is being processed.

WARNING: IJMQ_B1137: Cluster initialization failed. Disabling the cluster service.

Explanation

The cluster is being disabled because cluster initialization failed.

System Action

Processing is continued.

User Action

If message [IJMQ_B3168](#) was also output, then follow the action advised in its User Action section.

If the problem persists, use the `iscollectinfo` command to collect investigation information, and then contact your service engineer.

INFO: IJMQ_B1140: Expired {0} messages from destination {1}

Variable Information

{0}: Number of messages
{1}: Physical storage destination name

Explanation

{0} messages at the physical storage destination shown in the variable information {1} have expired.

System Action

Processing is continued.

INFO: IJMQ_B1141: Using built-in file-based persistent store: {0}

Variable Information

{0}: Storage destination for persistent information

Explanation

The message broker is using the storage destination for persistent information shown in the variable information {0}.

INFO: IJMQ_B1144: Creating Dead Message Queue

Explanation

A dead message queue is being created.

INFO: IJMQ_B1145: Message {0} has been removed from the Dead Message Queue (original destination was {1}:{2})

Variable Information

{0} : Message information

{1} : Physical storage destination type before the message was moved to the dead message queue (T:Topic Q:Queue)

{2} : Physical storage destination name before the message was moved to the dead message queue

Explanation

Message {0} was deleted from the dead message queue.

INFO: IJMQ_B1146: Message {0} has been removed from destination {1} because {2}

Variable Information

{0}: Message ID

{1}: Physical storage destination name

{2}: Cause of issue

Explanation

The message shown in the variable information {0} has been discarded from the physical storage destination shown in the variable information {1}

System Action

Processing is continued.

INFO: IJMQ_B1147: Message {0} from destination {1} has been placed on the DMQ because {2}

Variable Information

{0}: Message ID

{1}: Physical storage destination name

{2}: Cause of issue

Explanation

The message shown in the variable information {0} has been moved from the physical storage destination shown in the variable information {1} to the dead message queue.

System Action

Processing is continued.

INFO: IJMQ_B1151: Loading destination {0} with {1} messages

Variable Information

{0}: Physical storage destination name
{1}: Number of messages stored in the physical storage destination

Explanation

The physical storage destination shown in the variable information {0} is being read.

INFO: IJMQ_B1152: Loading of destination {0} complete

Variable Information

{0}: Physical storage destination name

Explanation

The physical storage destination shown in the variable information {0} has been read.

INFO: IJMQ_B1153: Loading of destination {0} in process, {1} of {2} messages loaded, {3}% complete

Variable Information

{0}: Physical storage destination name[Physical storage destination type]
{1}: Number of loaded messages
{2}: Number of messages stored in the physical storage destination
{3}: Percentage of messages loaded

Explanation

The physical storage destination {0} is being loaded.

INFO: IJMQ_B1154: Administrator has requested the destruction of connection {0}

Variable Information

{0}: Connection ID

Explanation

Destruction of the connection {0} was received.

IJMQ_B1157: Unable to store message to destination {0}: Broker is shutting down or destination is being destroyed

Variable Information

{0}: Physical storage destination name

Explanation

Message storage failed.

The following operations might have been performed during storage of a persistent message:

- Message broker stop processing
- Physical storage destination deletion

System Action

Processing is continued.

User Action

Take the following actions:

- If the message broker was stopped:
Restart the message broker and then execute the application again.

- If the physical storage destination was deleted:

Re-create the physical storage destination or change the physical storage destination used as the send destination, then execute the application again.

INFO: IJMQ_B1158: Administrator has created destination {0}**Variable Information**

{0}: Physical storage destination name

Explanation

The physical storage destination shown in the variable information {0} has been created.

System Action

Processing is continued.

INFO: IJMQ_B1159: Destination {0} has been destroyed**Variable Information**

{0}: Physical storage destination name

Explanation

The physical storage destination shown in the variable information {0} has been deleted.

INFO: IJMQ_B1160: Connection {0} has created destination {1}**Variable Information**

{0}: Connection ID

{1}: Physical storage destination name

Explanation

A connection has been made to the physical storage destination in the variable information {1}.

System Action

Processing is continued.

INFO: IJMQ_B1161: Initialization of instance has completed, exiting**Explanation**

A broker instance was created.

INFO: IJMQ_B1197: Quiesce Starting**Explanation**

Processing to stop acceptance of new connections starts, and current connections are monitored.

System Action

Processing is continued.

INFO: IJMQ_B1198: Quiesce Complete**Explanation**

Monitoring of current connections has finished.

System Action

Processing is continued.

IJMQ_B1199: Shutdown requested by {0}**Variable Information**

{0}: User name

Explanation

A broker stop request has been accepted.

System Action

Processing is continued.

13.18.7 IJMQ_B1200 to IJMQ_B1299

INFO: IJMQ_B1227: Using {0} user repository for {1} service connection authentication**Variable Information**

{0}: User information storage destination type

{1}: Service name

Explanation

A connection using the type of user information shown in the variable information {0} is being authenticated for the service shown in the variable information {1}.

INFO: IJMQ_B1228: Cluster ping interval is {0} seconds**Variable Information**

{0}: ping interval [seconds]

Explanation

The message broker executes the ping function at the interval shown in the variable information {0}.

INFO: IJMQ_B1234: JMX Connector Server {0} started successfully with url {1}**Variable Information**

{0}: Service name

{1}: URL information

Explanation

The JMX connector server has started.

INFO: IJMQ_B1235: JMX Connector Server {0} stopped successfully**Variable Information**

{0}: Service name

Explanation

The JMX connector server has stopped.

INFO: IJMQ_B1236: JMX Connection Open: {0}, connection ID: {1}, Count={2}**Variable Information**

{0}: Service name

{1}: Connection ID

{2}: Connection ID length

Explanation

The JMX connection has been opened.

INFO: IJMQ_B1237: JMX Connection Close: {0}, connection ID: {1}, Count={2}

Variable Information

{0}: Service name
{1}: Connection ID
{2}: Connection ID length

Explanation

The JMX connection has been closed.

INFO: IJMQ_B1239: Using platform MBean server

Explanation

The default MBean server is being used.

INFO: IJMQ_B1252: Pausing all services

Explanation

All services are being paused.

System Action

Processing is continued.

INFO: IJMQ_B1253: Resuming all services

Explanation

All services are being restarted.

System Action

Processing is continued.

INFO: IJMQ_B1267: Of {0} remote transactions, {1} in PREPARED state, {2} in COMMITTED state

Variable Information

{0}: Number of transactions
{1}: Number of data items currently in transactions
{2}: Number of committed data items

Explanation

The transaction data details are displayed.

INFO: IJMQ_B1284: {0} cluster transactions remain in PREPARED state, {1} in COMMITTED state waiting for remote broker completion

Variable Information

{0}: Number of data items not yet committed
{1}: Number of data items already committed

Explanation

Transaction data details are displayed.

INFO: IJMQ_B1285: Reaper thread for committed transactions has started (limit {0}, interval {1}sec).

Variable Information

{0}: Maximum number of transaction data items held
{1}: Monitoring interval

Explanation

The transaction data reaper thread has started.

IJMQ_B1287: Unable to resume unknown destination {0}:{1}

Variable Information

{0}: Physical storage destination type (topic/queue)
{1}: Physical storage destination name

Explanation

The specified physical storage destination does not exist.

System Action

Processing is continued.

User Action

Specify an existing physical storage destination, then execute the command again.

13.18.8 IJMQ_B1300 to IJMQ_B1399

INFO: IJMQ_B1300: Monitoring Quiescing, remaining connections {0}, remaining messages {1}

Variable Information

{0}: Number of remaining connections
{1}: Number of remaining messages

Explanation

Current connections are monitored.

System Action

Processing is continued.

INFO: IJMQ_B1301: Unquiesced

Explanation

Acceptance of new connections has restarted.

System Action

Processing is continued.

13.18.9 IJMQ_B2000 to IJMQ_B2099

WARNING: IJMQ_B2007: Creation of destination {0} failed {1}

Variable Information

{0}: Physical storage destination name
{1}: Cause of issue

Explanation

Creation of the physical storage destination failed.

System Action

Processing is continued.

User Action

Check the cause of issue shown in the variable information {1} and, if required, fix the problem.

WARNING: IJMQ_B2009: Creation of consumer {0} from connection {1}@{2} on destination {3} failed: {4}

Variable Information

{0}: Consumer ID (not displayed if a consumer ID does not exist)
{1}: User name connected to the message broker
{2}: Message broker host name and port number
{3}: Physical storage destination name
{4}: Detail information

Explanation

Consumer creation failed.

System Action

Processing is continued.

User Action

Follow the action advised in the message starting with IJMQ that is output at variable information {4}.

WARNING: IJMQ_B2010: Destruction of consumer from connection {0}@{1} on destination {2} failed: {3}

Variable Information

{0}: User name connected to the message broker
{1}: Message broker host name and port number
{2}: Physical storage destination name
{3}: Detail information

Explanation

Failed to delete the consumer.

System Action

Processing is continued.

User Action

Follow the action advised in {3}.

WARNING: IJMQ_B2011: Storing of JMS message from {0} failed: {1}

Variable Information

{0}: Client connection information
{1}: Detail information

Explanation

Message storage failed.

System Action

Processing is continued.

User Action

- If "java.lang.IllegalArgumentException" was output at variable information {1}

The imq.message.expiration.interval property specified when the message broker started might be incorrect. If it was specified when the message broker started, then make sure that the correct value is set.

- If "com.sun.messaging.jmq.jmsserver.util.BrokerException" was output at variable information {1}

The physical storage destination that was output to variable information {1} may have been deleted. Check whether that physical storage destination exists.

- If a message starting with IJMQ was output at variable information {1}

Follow the action advised in the output message.

IJMQ_B2016: Unable to parse selector {0}

Variable Information

{0}: Selector statement

Explanation

The specified selector statement is invalid.

System Action

Processing is continued.

User Action

Specify a valid value for the selector statement.

WARNING: IJMQ_B2025: Admin Operation Failed.{0}

Variable Information

{0}: Cause of issue

Explanation

An operation performed with administration permission failed.

System Action

Processing is continued.

User Action

Check the cause of issue shown in the variable information {0} and , if required, fix the problem.

WARNING: IJMQ_B2040: Service {0}{1} access denied -{2}

Variable Information

{0}: Connection service name

{1}: Connection service type

{2}: Cause of issue

Explanation

The connection shown as the connection service name {0} failed.

System Action

Processing is continued.

User Action

Check the cause of issue shown in the variable information {2} and , if required, fix the problem.

WARNING: IJMQ_B2041: {0} on {1} destination {2} denied {3}**Variable Information**

{0}: Access rule type
{1}: Physical storage destination type
{2}: Physical storage destination name
{3}: Detail information

Explanation

The operation shown in the variable information {0} failed.

System Action

Processing is continued.

User Action

The specified user or group does not have permission to perform the operation shown in the variable information {0}.
Check the access control property file.

WARNING: IJMQ_B2042: {0} {1} destination {2} denied {3}**Variable Information**

{0}: Access rule type
{1}: Physical storage destination type
{2}: Physical storage destination name
{3}: Detail information

Explanation

The operation in variable information {0} failed.

System Action

Processing is continued.

User Action

The specified user/group is not allowed to execute the operation in {0}.
Check the access control properties file.

IJMQ_B2047: Unable to update service {0}:{1}**Variable Information**

{0}: Service name
{1}: Detail information

Explanation

Update of the service {0} failed.

Possible causes are as follows:

- The updated content for the connected service is invalid.
- The port for the connected service was updated while the connected service was in a stopped or paused state.

System Action

Processing is continued.

User Action

Take the following actions:

- Review the updated content for the connected service.
- If the connected service was in a stopped or paused state and the connected service port was updated, resume the connected service.

WARNING: IJMQ_B2075: Broker ran out of memory before the passed in VM maximum (-Xmx) {1} b, lowering max to currently allocated memory ({0} b) and trying to recover

Variable Information

- {0}: Maximum Java heap size (bytes) usable by the message broker
- {1}: Java heap size (bytes) currently used by the message broker

Explanation

The Java heap used by the message broker is too small.

System Action

Processing is continued.

User Action

The Java heap used by the message broker is too small. After the message broker stops, take the action advised in "[14.8 Abnormalities in JMS Development/Operations](#)" > "[Action when the Message Broker Java Heap is too Small](#)".

WARNING: IJMQ_B2076: Broker is rejecting new producers, because it is extremely low on memory

Explanation

The Java heap used by the message broker is insufficient, therefore the message broker rejects new producers. There are consumers who have not received messages, therefore these messages may have accumulated in the physical storage destination.

System Action

Processing is continued.

User Action

The Java heap used by the message broker is too small.

- Messages might have accumulated in the physical storage destination because some consumers are not receiving them. If this is the case, then receive the messages if necessary.
- If the above does not solve the problem, then after the message broker stops, take the action advised in "[14.8 Abnormalities in JMS Development/Operations](#)" > "[Action when the Message Broker Java Heap is too Small](#)".

WARNING: IJMQ_B2080: Browsing of Queue {0} failed, destination unknown

Variable Information

- {0}: Physical storage destination name

Explanation

Browsing failed because the physical storage destination does not exist.

System Action

Processing is continued.

User Action

Specify a valid physical storage destination.

WARNING: IJMQ_B2081: Destroying destination {0} with {1} active producers. Reason: {2}

Variable Information

{0}: Physical storage destination name
{1}: Number of connected producers
{2}: Reason for the deletion

Explanation

The physical storage destination to which the producers are currently connected will be deleted.

System Action

Processing is continued.

User Action

- When {2} is 'at Admin Request':
Make sure that the physical storage destination deleted is the correct one, and create a new one if necessary.
- All other cases:
Use the iscollectinfo command to collect investigation information, and then contact your service engineer.

WARNING: IJMQ_B2082: Destroying destination {0} with {1} active consumers. Consumers will no longer receive messages. Reason: {2}

Variable Information

{0}: Physical storage destination name
{1}: Number of connected consumers
{2}: Reason for the deletion

Explanation

The physical storage destination to which the consumers are currently connected will be deleted.

System Action

Processing is continued.

User Action

- When {2} is 'at Admin Request'
Make sure that the physical storage destination deleted is the correct one, and create a new one if necessary.
- All other cases
Use the iscollectinfo command to collect investigation information, and then contact your service engineer.

IJMQ_B2083: Unable to create destination {0} [{1}], auto creation is forbidden

Variable Information

{0}: Temporary physical storage destination name
{1}: Physical storage destination type

Explanation

A temporary physical storage destination that has already been deleted cannot be used.

System Action

Processing is interrupted.

User Action

Check the application to determine whether a temporary physical storage destination that has already been deleted was used.

ERROR: IJMQ_B2085: Loading Destination {0} failed. Messages stored on that destination will not be available. {1}

Variable Information

{0}: Physical storage destination name
{1}: Cause of the error

Explanation

Read failed for the physical storage destination shown in the variable information {0}.

System Action

Processing is continued.

User Action

- If "java.lang.OutOfMemoryError: Java heap space" was output at variable information {1}, then the Java heap used by the message broker is too small. After the message broker stops, take the action advised in "[14.8 Abnormalities in JMS Development/Operations](#)" > "[Action when the Message Broker Java Heap is too Small](#)".
- If the problem persists, use the `iscollectinfo` command to collect investigation information, and then contact your service engineer.

WARNING: IJMQ_B2090: Unable to move message {0} to the Dead Message Queue.

Variable Information

{0}: Message information

Explanation

The message {0} cannot be moved to the dead message queue.

System Action

Processing is continued.

User Action

- If the maximum number of messages that can be stored in the dead message queue has been reached and `REJECT_NEWEST` or `REMOVE_LOW_PRIORITY` is set for `limitBehavior`:
If required, take one of the following actions:
 - Receive messages from the dead message queue.
 - Set `limitBehavior` to `REMOVE_OLDEST` for the dead message queue.
- If the above do not apply:
Use the `iscollectinfo` command to collect investigation information, and then contact your service engineer.

13.18.10 IJMQ_B2100 to IJMQ_B2199

WARNING: IJMQ_B2104: Warning possible clock synchronization problem detected. Messages from connection {0} are arriving close to their expiration times. Check system clocks on both systems to ensure that clock skew does not affect message expiration.

Variable Information

{0}: Connection ID

Explanation

Message expiration cannot be guaranteed because there is a discrepancy between the system clocks at the client that is executing the application and the server where the message broker is operating.

System Action

Processing is continued.

User Action

There might be a discrepancy between the system clocks at the client that is executing the application and the server where the message broker is operating. Set such that the system clocks at the client and server are synchronized, and then restart the message broker and execute the application.

WARNING: IJMQ_B2106: Creation of consumer {0} from connection {1}:{2} on the auto-created destination {3} failed: {4}

Variable Information

{0}: Consumer ID (not displayed if a consumer ID does not exist)
{1}: User name connected to the message broker
{2}: Message broker host name and port number
{3}: Physical storage destination name
{4}: Detail information

Explanation

Failed to create the consumer to connect to the automatically generated physical storage destination.

System Action

Processing is continued.

User Action

Refer to the message starting with "IJMQ" that was output to variable information {4}, then take action.

WARNING: IJMQ_B2130: Login Failed:{0}

Variable Information

{0}: Cause of issue

Explanation

User account authentication failed.

System Action

Processing is continued.

User Action

Check the cause of issue shown in the variable information {0} and , if required, fix the problem.

WARNING: IJMQ_B2137: JMX Agent startup failed

Explanation

JMX agent startup failed.

System Action

Processing is continued.

WARNING: IJMQ_B2145: Caught exception when stopping JMX Agent

Explanation

An exception occurred during JMX agent startup.

System Action

Processing is continued.

WARNING: IJMQ_B2146: JMX connector server {0}: Failure detected during authentication {1}

Variable Information

{0}: Connector name
{1}: Detail information

Explanation

JMX connector server authentication failed.

System Action

Processing is continued.

User Action

Ensure that the administrator user ID/password set for the JMS service definition items of the IJServer cluster are valid.

WARNING: IJMQ_B2154: Problem detected while attempting to send notification {0} from MBean {1}

Variable Information

{0}: Event name
{1}: MBean name

Explanation

An error occurred for the MBean shown in the variable information {1}.

System Action

Processing is continued.

User Action

If a message starting with IJMQ was output in the same time band as this message, follow the action advised in that message.

WARNING: IJMQ_B2156: Cannot determine service name from connection ID: {0}

Variable Information

{0}: Connection ID

Explanation

The service that uses the connection shown in the variable information {0} cannot be determined.

System Action

Processing is continued.

User Action

If a message starting with IJMQ was output in the same time band as this message, follow the action advised in that message.

WARNING: IJMQ_B2176: Force [{0}] ended (TMFAIL) transaction TID={1}, XID={2}

Variable Information

{0}: Detail information
{1}: Transaction ID
{2}: XA transaction ID

Explanation

The transaction was ended by force for the reason displayed in {0}.

System Action

Processing is continued.

WARNING: IJMQ_B2177: Force [{0}] rolled back transaction TID={1}, XID={2}

Variable Information

{0}: Detail information
{1}: Transaction ID
{2}: XA transaction ID

Explanation

The transaction was rolled back by force for the reason displayed in {0}.

System Action

Processing is continued.

WARNING: IJMQ_B2181: Removing {0} messages associated with destination {1} [{2}]

Variable Information

{0}: Number of messages
{1}: Physical storage destination name
{2}: Physical storage destination type

Explanation

{0} messages were removed from {1}.

System Action

Processing is continued.

WARNING: IJMQ_B2188: Unknown transaction {0}, broker will notify the client. Ignore {1}

Variable Information

{0}: Transaction ID
{1}: Internal information

Explanation

The transaction operation failed because the transaction is unknown.

System Action

Processing is continued.

User Action

Take the following actions:

- If the transaction ID is -1:

Use the JTA transaction to execute transactions in Web/EJB applications.

- In all other cases:

Use the iscollectinfo command to collect investigation information, and then contact your service engineer.

WARNING: IJMQ_B2189: Unknown transaction {0}, broker will not notify the client. Ignore {1}

Variable Information

{0}: Transaction ID
{1}: Internal information

Explanation

The transaction operation failed because the transaction is unknown.

System Action

Processing is continued.

User Action

Take the following actions:

- If the transaction ID is -1:

Use the JTA transaction to execute transactions in Web/EJB applications.

- In all other cases:

Use the iscollectinfo command to collect investigation information, and then contact your service engineer.

WARNING: IJMQ_B2190: HALTING BROKER BECAUSE OF {0}

Variable Information

{0}: Detail information

Explanation

The message broker stopped for the reason {0}.

System Action

Processing is continued.

User Action

Refer to the message output {0} and take action.

13.18.11 IJMQ_B3000 to IJMQ_B3099

ERROR: IJMQ_B3003: Unable to store modified properties in file {0}:

Variable Information

{0}: Path to the definition file

Explanation

The write process to the definition file failed.

System Action

Processing is interrupted.

User Action

Use the iscollectinfo command to collect investigation information, and then contact your service engineer.

WARNING: IJMQ_B3004: No threads are available to process a new connection on service {0}. {1} threads out of a maximum of {2} threads are already in use by other connections. A minimum of 2 threads must be available to process the connection. Please either limit the # of connections or increase the imq.<service>.max_threads property. Closing the new connection.

Variable Information

{0}: Service name
{1}: Current number of threads
{2}: Maximum number of threads

Explanation

A new thread connection was closed because the number of threads connected to the service shown in the variable information {0} exceeds the maximum number of threads shown in the variable information {2}.

System Action

Processing is continued.

User Action

Take one of the following actions:

- End unnecessary applications that are connected to variable information {0}.
- Stop the message broker. Then, specify a value larger than variable information {2} in the imq.variable information {2}.max_threads property of the imqbrokerd command and restart the message broker.

ERROR: IJMQ_B3007: Message {0} on destination {1} could not be found in the store

Variable Information

{0}: Physical storage destination
{1}: Message ID

Explanation

Discarding the message failed.

System Action

Processing is continued.

User Action

The imqcmd purge dst command might have been executed while an application was being executed.
Do not execute this command while an application is being executed.
For details on the command, refer to "imqcmd".

ERROR: IJMQ_B3009: Unable to start service {0}: {1}

Variable Information

{0}: Service name
{1}: Detail information

Explanation

Start processing failed for the service shown in the variable information {0}.

System Action

Processing is continued.

User Action

If `java.lang.ArrayIndexOutOfBoundsException` was output at variable information { 1 }, the value set as the minimum number of threads might be incorrect. If `imq.<serviceName>.min_threads` property was specified when the message broker was started, check whether the correct value was set.

In cases other than the above, follow the action advised in the message output as variable information { 1 }.

IJMQ_B3029: Unrecognized command line option: {0}.

Variable Information

{0}: Option name

Explanation

Command execution failed because an invalid option was specified.

System Action

Processing is interrupted.

User Action

Specify the correct option and then execute the command again.

For details on the command, refer to "imqusermgr".

IJMQ_B3032: An argument was expected for option: {0}.

Variable Information

{0}: Option name

Explanation

Command execution failed because an option parameter was not specified.

System Action

Processing is interrupted.

User Action

Specify the correct option parameter and then execute the command again.

For details on the command, refer to "imqusermgr".

IJMQ_B3039: The password and/or active state needs to be specified.

Explanation

Command execution failed because a mandatory option was not specified.

System Action

Processing is interrupted.

User Action

Ensure that either the password (-p) or the active status (-a) is specified.

For details on the command, refer to "imqusermgr".

IJMQ_B3040: Bad group value specified for the add command: {0}

Variable Information

{0}: Group name

Explanation

Command execution failed because an invalid group name was specified.

System Action

Processing is interrupted.

User Action

The following values can be specified as the group name:

- admin
- user

For details on the command, refer to "imqusermgr".

IJMQ_B3042: The user name needs to be specified with the {0} option.

Variable Information

{0}: Option name

Explanation

Command execution failed because a mandatory option was not specified.

System Action

Processing is interrupted.

User Action

Specify the option shown in variable information {0} and then execute the command again.

For details on the command, refer to "imqusermgr".

WARNING: IJMQ_B3044: Internal Error: {0}

Variable Information

{0}: Detail information

Explanation

An internal error occurred for the message broker.

System Action

Processing is continued.

User Action

Follow the procedure below:

- Refer to {0} and the message output at the same time as this one, and take action.
 - There might be a disk space shortage. Check whether sufficient free space can be allocated to the Java EE common directory. If free space cannot be allocated, use the iscollectinfo command to collect investigation information, and then contact your service engineer.
-

IJMQ_B3046: The password file cannot be located: {0}

Variable Information

{0}: Path to the definition file

Explanation

The definition file cannot be found.

System Action

Processing is interrupted.

User Action

Use the `iscollectinfo` command to collect investigation information, and then contact your service engineer.

IJMQ_B3048: User {0} does not exist in the password file.

Variable Information

{0}: User name

Explanation

Command execution failed because a non-existent user was specified.

System Action

Processing is interrupted.

User Action

A non-existent user cannot be specified for the following subcommands:

- delete
- update
- list

Check whether the user name at variable information {0} exists, and then execute the command again.

For details on the command, refer to "imqusermgr".

IJMQ_B3050: User {0} already exists in the password file.

Variable Information

{0}: User name

Explanation

Command execution failed because a user who is already registered was specified.

System Action

Processing is interrupted.

User Action

Check the user name at variable information {0} and then execute the command again.

For details on the command, refer to "imqusermgr".

IJMQ_B3052: Failed to read password file: {0} - {1}

Variable Information

{0}: Path to the password file

{1}: Cause of the error

Explanation

Password file read processing failed.

System Action

Processing is continued.

User Action

- If the message that is output at the same time includes "Too many open files", the following might apply:
 - A file descriptor shortage might have occurred. Revise the file descriptor settings.
 - If communication between applications is started and stopped repeatedly within a short time span, then file descriptor collection might lag and cause a temporary file descriptor shortage. If this is the case, then increase the number of file descriptors.
- If the message that is output at the same time includes "The specified file cannot be found", the password file (passwd) shown in the variable information {0} does not exist.

Follow the action advised in "Troubleshooting" > "[Action when the Access Control File \(accesscontrol.properties\) or the Password File \(passwd\) does not Exist](#)", then rebuild the environment.

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

IJMQ_B3053: A user in group anonymous already exists (only one is allowed).

Explanation

More than one user cannot be registered in the anonymous group.

System Action

Processing is interrupted.

User Action

Specify a different group name and then execute the command again.

For details on the command, refer to "imqusermgr".

IJMQ_B3058: Invalid option {0}

Variable Information

{0}: Option name

Explanation

Command execution failed because an invalid option was specified.

System Action

Processing is interrupted.

User Action

Specify the correct option and execute the command again.

For details on the command, refer to "imqbrokerd".

IJMQ_B3067: Illegal username specified: {0}

Variable Information

{0}: User name

Explanation

Command execution failed because an invalid user name was specified.

System Action

Processing is interrupted.

User Action

The following are possible causes:

- Illegal characters are included in the user name shown in the variable information {0}.
- The user names "guest" and "admin" cannot be deleted.
- The user name "guest" cannot be updated.

For details on the command, refer to "imqusermgr".

IJMQ_B3068: Could not start the Broker's {0} service on port {1}.

Variable Information

{0}: Service name
{1}: Port number

Explanation

Service {0} failed to start.

System Action

Processing is interrupted.

User Action

The port number {1} could not be used for service {0}, so change it and restart the message broker.

ERROR: IJMQ_B3087: The broker has detected an active lock file: {0}

Variable Information

{0}: Cause of the error

Explanation

Command execution failed because a message broker that is currently being activated was specified.

System Action

Processing is interrupted.

User Action

Specify the correct broker name and then execute the command again.

For details on the command, refer to "imqusermgr".

IJMQ_B3089: Bad value specified for active state: {0}

Variable Information

{0}: Active status value

Explanation

Command execution failed because an invalid active status was specified.

System Action

Processing is interrupted.

User Action

Specify the correct value as the active status and then execute the command again.

The values shown below can be specified (they are not case-sensitive):

- true
- false
- t

- f

For details on the command, refer to "imqusermgr".

13.18.12 IJMQ_B3100 to IJMQ_B3199

ERROR: IJMQ_B3100: Unexpected Broker Internal Error : [{0}]

Variable Information

{0}: Cause of the error

Explanation

An internal error occurred for the message broker.

System Action

Processing is continued.

User Action

- If "java.lang.OutOfMemoryError" is output as the cause of the error {0}, the Java heap used by the message broker is too small. After the message broker stops, take the action advised in "[14.8 Abnormalities in JMS Development/Operations](#)" > "[Action when the Message Broker Java Heap is too Small](#)".
- If "unexpected error processing clientid" is output as the cause of the error {0}, the loopback address might be the only address set in the host network definitions. The message broker cannot operate in an environment where only a loopback address is set. At the host where the message broker operates, set an IP address that can be referenced remotely, and then restart the message broker. For details of network definitions, refer to "Common Notes for Interstage", "Entering Information in the Hosts File" in the "Notes on Interstage Operation" chapter of the Product Notes.
- In cases other than the above, refer to variable information {0} and the messages output in the same time band as this message and follow the advised action.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: IJMQ_B3107: Attempt to free memory failed, taking more drastic measures

Explanation

The Java heap used by the message broker is too small.

System Action

Processing is continued.

User Action

The Java heap used by the message broker is too small. After the message broker stops, take the action advised in "[14.8 Abnormalities in JMS Development/Operations](#)" > "[Action when the Message Broker Java Heap is too Small](#)".

IJMQ_B3110: The active state (-a) cannot be used with the "add" subcommand.

Explanation

The -a option cannot set for the add subcommand of the imqusermgr command.

System Action

Processing is interrupted.

User Action

Specify the correct option and then execute the command again.

For details on the command, refer to "imqusermgr".

ERROR: IJMQ_B3120: Failed to remove file store: {0}**Variable Information**

{0}: Cause of the error

Explanation

Deletion of persistent information failed.

System Action

Processing is interrupted.

User Action

The imqbrokerd -remove instance command might have been executed for a started broker.

Check the broker name and then execute the command again.

For details on the command, refer to "imqbrokerd".

IJMQ_B3128: Unknown destination {0} of type {1}**Variable Information**

{0}: Physical storage destination name

{1}: Physical storage destination type

Explanation

The command failed because either the physical storage destination name shown in the variable information {0} or the physical storage destination type shown in the variable information {1} is incorrect.

System Action

Processing is interrupted.

User Action

Specify the correct values for the physical storage destination name shown in variable information {0} and the physical storage destination type shown in variable information {1} and then execute the command again.

For details on the command, refer to "imqcmd".

**ERROR: IJMQ_B3137: The broker instance {0} does not exist.
Run the broker to create the instance before using the user manager utility.****Variable Information**

{0}: Message broker name

Explanation

A user account operation failed for the message broker shown in the variable information {0}.

System Action

Processing is interrupted.

User Action

Specify the correct value for the message broker name shown in variable information {0} and then execute the command again.

For details on the command, refer to "imqusermgr".

INFO: IJMQ_B3138: Unable to parse property {0}

Variable Information

{0}: Detail information

Explanation

The message broker setting shown in the variable information {0} failed.

System Action

Processing is continued.

ERROR: IJMQ_B3143: Broker is forcibly closing the connection to {0}

Variable Information

{0}: Detail information

Explanation

The connection was forcibly disconnected because the Java heap is too small.

System Action

Processing is continued.

User Action

The Java heap used by the message broker is too small. After the message broker stops, take the action advised in "[14.8 Abnormalities in JMS Development/Operations](#)" > "[Action when the Message Broker Java Heap is too Small](#)".

ERROR: IJMQ_B3144: Unable to read message {0}

Variable Information

{0}: Message ID

Explanation

Message read processing failed.

System Action

Processing is interrupted.

User Action

The imqcmd purge dst command might have been executed while an application was being executed.

Do not execute this command while an application is being executed.

For details on the command, refer to "imqcmd".

ERROR: IJMQ_B3145: Unable to remove message {0}

Variable Information

{0}: Message ID

Explanation

Discarding the message failed.

System Action

Processing is interrupted.

User Action

The imqcmd purge dst command might have been executed while an application was being executed.

Do not execute this command while an application is being executed.

For details on the command, refer to "imqcmd".

WARNING: IJMQ_B3164: The portmapper service got an exception processing a request from client {0}. The client may need to attempt the connection again

Variable Information

{0}: Client IP address

Explanation

An exception occurred during processing of the request from the client at the IP address {0}.

System Action

Processing is continued.

User Action

The Java heap used by the message broker is too small.

- If this message is output during JMS client application execution, then execute the JMS client application again.
- If the above does not solve the problem, then after the message broker stops, take the action advised in "[14.8 Abnormalities in JMS Development/Operations](#)" > "[Action when the Message Broker Java Heap is too Small](#)".

IJMQ_B3166: User name specified must contain at least one character.

Explanation

The user name specification is incorrect.

System Action

Error information is posted.

User Action

Check whether the specified option is correct.

If the add subcommand is used with the imqusermgr command, specify a user name with a character string length of one character or longer.

WARNING: IJMQ_B3168: Invalid broker address for this broker to run in cluster: {0}

Variable Information

{0}: Detail information

Explanation

The message broker address is invalid.

System Action

Processing is continued.

User Action

If the message broker is operating in an IIServer cluster environment, the message broker cannot operate in an environment where only a loopback address is set in the host network definitions. At the host where the message broker operates, set an IP address that can be referenced remotely, and then restart the message broker. For network definition details, refer to "Common Notes for Interstage", "Entering Information in the Hosts File" in the "Notes on Interstage Operation" chapter of the Product Notes.

In all other cases, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

13.18.13 IJMQ_B3200 to IJMQ_B3299

IJMQ_B3229: Transaction acknowledgement {0} processing failed: {1}

Variable Information

{0}: Detail information
{1}: Cause of the error

Explanation

Receive message processing failed.

System Action

Processing is continued.

User Action

Take the following actions:

- If {1} is "Unexpected Broker Exception: [Received acknowledgement with Unknown Transaction ID -1]":
Use the JTA transaction to execute transactions in Web/EJB applications.
- If {1} starts with "IJMQ":
Take action according to {1}.
- In all other cases:
Use the iscollectinfo command to collect investigation information, and then contact your service engineer.

13.18.14 IJMQ_B4000 to IJMQ_B4099

IJMQ_B4000: File not found: {0}

Variable Information

{0}: Configuration file path

Explanation

The configuration file does not exist.

System Action

Processing is interrupted.

User Action

The access control file (accesscontrol.properties) or the password file (passwd) shown in the variable information {0} does not exist.

Follow the action advised in "Troubleshooting" > "[Action when the Access Control File \(accesscontrol.properties\) or the Password File \(passwd\) does not Exist](#)" and then rebuild the environment.

IJMQ_B4001: Unable to open protocol {0} for {1} service using {2}

Variable Information

{0}: Protocol name
{1}: Service name
{2}: Detail information

Explanation

The protocol shown in the variable information {0} and used by the service shown in the variable information {1} failed to open.

System Action

Processing is continued.

User Action

If the `imq.<serviceName>.tcp.port` property was specified when the message broker was started, the specified port number might already be in use. Stop the message broker and change the `imq.<serviceName>.tcp.port` property, and then start the message broker.

IJMQ_B4004: Failed to persist message {0};{1}

Variable Information

{0}: Message ID
{1}: Detailed information

Explanation

Failed to write the persistent message shown in the variable information {0}.

System Action

Processing is continued.

User Action

Make sure that there is enough free disk space. For details on how to estimate it, refer to "[6.23 Required Resources](#)" > "[6.23.1 Disk Capacity](#)".

IJMQ_B4024: The Maximum Number of messages currently in the system [{0}] has been exceeded, rejecting message {1}

Variable Information

{0}: Value set for `imq.system.max_count`
{1}: Message ID

Explanation

The message shown in the variable information {1} was discarded because the number of messages being held by the message broker exceeds the maximum number of messages that can be held.

System Action

Processing is continued.

User Action

Take the following actions:

- Check the value specified for `imq.system.max_count` and, if required, change the value.
- Start the reception application and receive the messages stored at the physical storage destination.

IJMQ_B4025: The Maximum Size limit for the messages currently in the system [{0}] has been exceeded, rejecting message {1}

Variable Information

{0}: Value set for `imq.system.max_size`
{1}: Message ID

Explanation

The message shown in the variable information {1} was discarded because the total size of the messages being held by the message broker exceeds the maximum total size of messages that can be held.

System Action

Processing is continued.

User Action

Take the following actions:

- Check the value specified for `imq.system.max_size` and, if required, change the value.
- Start the reception application and receive the messages stored at the physical storage destination.

IJMQ_B4026: The size [{0} bytes] of Message {1} is larger than the individual message limit (imq.message.max_size) of {2} bytes, rejecting the message

Variable Information

{0}: Message size
{1}: Message ID
{2}: Value set for `imq.message.max_size`

Explanation

The message shown in the variable information {1} was discarded because the size of the message is larger than the value set for `imq.message.max_size`.

System Action

Processing is continued.

User Action

Take the following actions:

- Check the value specified for `imq.message.max_size` and, if required, change the value.
- Check the number of properties of the message being sent and size of the text.

IJMQ_B4027: Invalid property value: {0}

Variable Information

{0}: Parameter information

Explanation

An invalid parameter was set.

System Action

Error information is posted.

User Action

Refer to the parameter information {0} that is output and revise the parameter.

IJMQ_B4043: Connection not authenticated

Explanation

Connection authentication failed.

If this message was output when the `imqcmd list cxn` command was executed, disconnection processing might be in progress for the relevant connection.

System Action

Processing is continued.

User Action

Wait for a few moments and then execute the command again.

IJMQ_B4047: Failed to load access control for type: {0} - {1}

Variable Information

{0}: Access control file path

{1}: Cause of the error

Explanation

Access control file read processing failed.

The access control file (accesscontrol.properties) shown in the variable information {0} does not exist.

System Action

Processing is continued.

User Action

Follow the action advised in "Troubleshooting" > "[Action when the Access Control File \(accesscontrol.properties\) or the Password File \(passwd\) does not Exist](#)" and then rebuild the environment.

IJMQ_B4051: Forbidden {0}

Variable Information

{0}: User name

Explanation

The specified user does not have execution privileges.

System Action

Processing is interrupted.

User Action

- Check the group to which the user shown in the variable information {0} belongs (for details, refer to "imqcmd").
- Ensure that the administrator user ID/password set for the JMS service definition items of the IJServer cluster are valid.

IJMQ_B4058: Unable to unsubscribe to interest with a durable name of {0} and a client id of {1} - consumer does not exist

Variable Information

{0}: Durable subscription name

{1}: Client ID

Explanation

Command execution failed because a non-existent durable subscriber was specified.

System Action

Processing is interrupted.

User Action

- If this message is output when the JMS client application is executed:

Durable subscriber might have been deleted using the `imqcmd` command `destroy dur` subcommand. Re-execute the JMS client application if necessary.

- If this message is output when the `imqcmd` command `destroy dur` subcommand is executed:

Check the durable subscription shown in the variable information {0} and the client ID shown in the variable information {1}. Specify the correct option and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_B4063: Can not create Destination {0}:{1} - the destination already exists

Variable Information

{0}: Physical storage destination type

{1}: Physical storage destination name

Explanation

Command execution failed because a physical storage destination that already exists was specified.

System Action

Processing is interrupted.

User Action

Specify a different physical storage destination name and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_B4076: Forbidden authenticated name {0} from service {1}{2} on administration destination

Variable Information

{0}: User name

{1}: Connected service name

{2}: Connected service type

Explanation

User authentication failed.

System Action

Processing is continued.

User Action

- If this message is output when the `imqcmd` command `shutdown bkr` subcommand is executed:

Refer to "14.8 Abnormalities in JMS Development/Operations" > "Cannot Stop the Message Broker", and stop the message broker.

WARNING: IJMQ_B4087: Unable to destroy destination: {0}, because :{1}

Variable Information

{0}: Physical storage destination name

{1}: Cause of the error

Explanation

Deletion of the physical storage destination failed.

System Action

Processing is interrupted.

User Action

Follow the action advised in the message output at variable information {1}.

For details on the command, refer to "imqcmd".

IJMQ_B4090: Unable to create destination: {0}, because {1}

Variable Information

{0}: Physical storage destination name

{1}: Detail information

Explanation

Creation of the physical storage destination {0} failed.

System Action

Processing is continued.

User Action

Follow the action advised in the message output at variable information {1}.

For details on the command, refer to "imqcmd".

IJMQ_B4091: The Destination of {0} contains invalid characters

Variable Information

{0}: Physical storage destination name

Explanation

Command execution failed because an invalid physical storage destination name was specified.

System Action

Processing is interrupted.

User Action

Check whether invalid characters are included in the physical storage destination name shown in the variable information {0}.

For details on the command, refer to "imqcmd".

IJMQ_B4095: Durable subscription {0}:{1} is already active on destination {2}:{3}.

Variable Information

{0}: Subscription identifier

{1}: Client ID

{2}: Physical storage destination type

{3}: Physical storage destination name

Explanation

The specified durable subscription is being used by another consumer.

System Action

An exception will be notified to the application.

User Action

Ensure that the specified durable subscription is not being used.

13.18.15 IJMQ_B4100 to IJMQ_B4199

IJMQ_B4110: Minimum threads {0} greater than maximum threads {1}

Variable Information

{0}: Minimum number of threads
{1}: Maximum number of threads

Explanation

The value set for the minimum number of threads, shown in the variable information {0}, is greater than the value set for the maximum number of threads shown in the variable information {1}.

System Action

Processing is continued.

User Action

Refer to the message that was also output and fix the error.

IJMQ_B4115: Unable to set thread values to min={0} max={1}:{2}

Variable Information

{0}: Minimum number of threads
{1}: Maximum number of threads
{2}: Detail information

Explanation

Setting of the minimum number of threads and the maximum number of threads failed.

System Action

Processing is continued.

User Action

Follow the action advised in the message output at variable information {2}.

IJMQ_B4117: Unexpected Broker Exception: [{0}]

Variable Information

{0}: Cause of issue

Explanation

An exception occurred for the message broker.

System Action

Processing is continued.

User Action

Check the cause of issue shown in the variable information {0} and, if required, fix the problem.

IJMQ_B4120: Can not store message {0} on destination {1}. The destination message count limit (maxNumMsgs) of {2} has been reached.

Variable Information

{0}: Message ID
{1}: Physical storage destination name
{2}: Value set for maxNumMsgs

Explanation

The message shown in the variable information {0} was discarded because the number of messages being held by the physical storage destination shown in the variable information {1} exceeds the number of messages that can be held.

System Action

Processing is continued.

User Action

Take the following actions:

- Check the value specified for maxNumMsgs and, if required, change the value.
- Start the reception application and receive the messages stored at the physical storage destination shown in the variable information {1}.

IJMQ_B4121: Can not store message {0} on destination {1}. The destination total byte limit (maxTotalMsgBytes) of {2} bytes has been reached.

Variable Information

{0}: Message ID
{1}: Physical storage destination name
{2}: Value set for maxTotalMsgBytes

Explanation

The message shown in the variable information {0} was discarded because the total size of the messages being held by the physical storage destination shown in the variable information {1} exceeds the maximum total size of messages that can be held.

System Action

Processing is continued.

User Action

Take the following actions:

- Check the value specified for maxTotalMsgBytes and, if required, change the value.
- Start the reception application and receive the messages stored at the physical storage destination shown in the variable information {1}.

IJMQ_B4122: Can not store message {0} on destination {1}. The message size of {2} bytes is larger than the destination individual message byte limit (maxBytesPerMsg) of {3} bytes.

Variable Information

{0}: Message ID
{1}: Physical storage destination name
{2}: Message size
{3}: Value set for maxBytesPerMsg

Explanation

The message shown in the variable information {0} was discarded because its size exceeds the message size that can be held by the physical storage destination shown in the variable information {1}.

System Action

Processing is continued.

User Action

Take the following actions:

- Check the value set for maxBytesPerMsg and, if required, change the value.
- Check number of properties and the text size of the message being sent.

IJMQ_B4132: Bad transaction state transition. Cannot perform operation {0} (XAFlag={1}) on a transaction in state {2}.

Variable Information

{0}: Transaction operation
{1}: Transaction flag
{2}: Transaction status

Explanation

The transaction status is {2}, therefore operation {0} failed.

System Action

Processing is interrupted.

User Action

Use the iscollectinfo command to collect troubleshooting information, and send it to a Systems Engineer.

IJMQ_B4135: Cannot add durable consumer {0}. No ClientID was set on connection.

Variable Information

{0}: Client ID

Explanation

A client ID was not set.

System Action

An exception is posted to the application.

User Action

Set a client ID.

IJMQ_B4136: The thread pool maximum for svc admin can not be set to 0

Explanation

Setting failed for the maximum number of threads. Zero cannot be set as the MaxThreads property value.

System Action

Processing is interrupted.

User Action

Specify the correct value for the MaxThreads property value and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_B4140: Broker is shutting down.

Explanation

Broker stop processing is in progress.

System Action

Processing is continued.

IJMQ_B4175: The following destination cannot be created: {0} Destination names starting with "{1}" are reserved for internal Message Queue use.

Variable Information

{0}: Physical storage destination name

{1}: Cause of the error

Explanation

Physical storage destination creation failed.

System Action

Processing is interrupted.

User Action

The physical storage destination named at the start of the character string in the error cause shown in the variable information {1} cannot be created.

Specify a different physical storage destination name and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_B4178: Max Producer Count for {0} can not be set to 0

Variable Information

{0}: Physical storage destination name

Explanation

Command execution failed because an invalid parameter was specified. Zero cannot be set as the MaxNumProducers property value.

System Action

Processing is interrupted.

User Action

Specify the correct value for the MaxNumProducers property value and then execute the command again.

For details on the command, refer to "imqcmd".

IJMQ_B4182: Consumer can not be added to destination {0}, limit of {1} consumers would be exceeded

Variable Information

{0}: Physical storage destination name

{1}: Maximum number of consumers that can be connected

Explanation

The consumer cannot connect because the number of consumers connected to the physical storage destination shown in the variable information {0} exceeds the maximum number of consumers that can be connected.

System Action

Processing is continued.

User Action

Take the following actions:

- Stop unnecessary reception applications.
- The number of consumers that can be connected to the physical storage destination is the sum of `maxNumActiveConsumers` and `maxNumBackupConsumers` property values. Check the values set for `maxNumActiveConsumers` and `maxNumBackupConsumers` and, if required, change the values.

IJMQ_B4183: Producer can not be added to destination {0}, limit of {1} producers would be exceeded

Variable Information

{0}: Physical storage destination name
{1}: Maximum number of send connections

Explanation

The maximum number of send connections was exceeded.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Stop unnecessary send applications
- Review the maximum number of send connections shown in the variable information {1} and, if required, change the `maxNumProducers` value.

IJMQ_B4188: The size [{0} bytes] of packet {1} is larger than the individual packet limit of {2} bytes, rejecting packet

Variable Information

{0}: Message size
{1}: Message ID
{2}: Message size which can be sent

Explanation

The size of the message {0} exceeds the message size limit, and therefore it will be destroyed.

System Action

Processing is continued.

User Action

Take the following action:

- Change the value of `imq.message.max_size` if necessary.
- Check the number of properties for the message to be sent, and the size of the body.

IJMQ_B4189: The useDMQ attribute can not be changed on the Dead Message Queue.

Explanation

The `useDMQ` attribute of the dead message queue cannot be changed.

System Action

Processing is interrupted.

User Action

The useDMQ attribute of the dead message queue cannot be changed.

For details on the command, refer to "imqcmd".

IJMQ_B4191: FLOW_CONTROL is not a legal behavior for the Dead Message Queue

Explanation

The limitBehavior of the dead message queue cannot be changed to FLOW_CONTROL.

System Action

Processing is interrupted.

User Action

The limitBehavior of the dead message queue cannot be changed to FLOW_CONTROL.

For details on the command, refer to "imqcmd".

IJMQ_B4192: Number of Producers can not be changed on the Dead Message Queue

Explanation

The MaxNumProducers of the dead message queue cannot be changed.

System Action

Processing is interrupted.

User Action

The MaxNumProducers of the dead message queue cannot be changed.

For details on the command, refer to "imqcmd".

IJMQ_B4193: The Dead Message Queue can not be destroyed

Explanation

The dead message queue cannot be deleted.

System Action

Processing is interrupted.

User Action

The dead message queue cannot be deleted.

For details on the command, refer to "imqcmd".

13.18.16 IJMQ_B4200 to IJMQ_B4299

IJMQ_B4209: Unable to unsubscribe to subscription with a durable name of {0} and a client id of {1} - Destination {2}:{3} and its associated consumers have been destroyed user={4}, broker={5}

Variable Information

- {0}: durable subscription name
- {1}: Client ID
- {2}: Physical storage destination type (T:Topic Q:Queue)
- {3}: Physical storage destination name
- {4}: User connected to the message broker
- {5}: Message broker host name and port number

Explanation

Failed to delete durable subscriber.

System Action

Processing is interrupted.

User Action

- If this message is output when the JMS client application is executed:

The following might have occurred:

- An inexistent durable subscription name was specified - review the application.
- The durable subscriber was deleted using the imqcmd command destroy dur subcommand - re-execute the JMS client application if necessary.
- If this message is output when the imqcmd command destroy dur subcommand is executed

The durable subscription name or client ID is incorrect. Specify a correct durable subscription name or client ID and then re-execute the command.

IJMQ_B4297: Message {0} reference is gone {1}, TUID={2}

Variable Information

{0}: Message ID

{1}: Internal information (not displayed if internal information does not exist)

{2}: Transaction ID

Explanation

The transaction operation failed because the message {0} does not exist.

System Action

Processing is continued.

User Action

The message {0} may have been deleted using the imqcmd command. Re-execute the JMS client application if necessary.

13.18.17 IJMQ_ B4300 to IJMQ_ B4399

IJMQ_B4303: The maximum number of messages [{0}] that the producer can process in a single transaction (TID={1}) has been exceeded. Please either limit the # of messages per transaction or increase the imq.transaction.producer.maxNumMsgs property.

Variable Information

{0}: Value of imq.transaction.producer.maxNumMsgs

{1}: Transaction ID

Explanation

The message could not be sent because the limit of messages per transaction was exceeded.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Change the value of imq.transaction.producer.maxNumMsgs if necessary.

- Check the number of messages to be sent per transaction.

IJMQ_B4304: The maximum number of messages [{0}] that the consumer can process in a single transaction (TID={1}) has been exceeded. Please either limit the # of messages per transaction or increase the imq.transaction.consumer.maxNumMsgs property.

Variable Information

{0}: Value of imq.transaction.consumer.maxNumMsgs
{1}: Transaction ID

Explanation

The message could not be received because the limit of messages per transaction was exceeded.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Change the value of imq.transaction.consumer.maxNumMsgs if necessary.
- Check the number of messages to be received per transaction.

IJMQ_B4307: {0}: The transaction [XID={1}] has been marked as rollback-only [state=FAILED from {2}]

Variable Information

{0}: Internal information
{1}: Transaction XID
{2}: Status of the transaction before the change

Explanation

The transaction operation failed.

System Action

Processing is continued.

User Action

Take action according to the message and message broker log that is output at the same time as this message.

IJMQ_B4308: Cannot add non-durable subscriber on {0}. Subscription is shared but no ClientID was set on connection.

Variable Information

{0}: Client ID

Explanation

A client ID was not set.

System Action

An exception will be notified to the application.

User Action

Set a client ID.

13.18.18 IJMQ_C4000 to IJMQ_C4099

IJMQ_C4000: Packet acknowledge failed. {0}

Variable Information

{0}: Supplementary information

Explanation

Data send processing failed.

System Action

An exception is posted to the application.

User Action

Refer to the messages output in the same time band as this message and the message broker log and follow the advised action.

IJMQ_C4001: Write packet failed.{0}

Variable Information

{0}: Supplementary information

Explanation

Data send processing failed.

System Action

An exception is posted to the application.

User Action

- If message MQJMSRA_CL1101 was output immediately prior to this message and if Message E301 was output as the cause of the error
 - Execute reception processing again. If a transaction operation was being performed, execute session rollback and then perform the reception processing again.
 - In cases other than the above:
 - Check whether the message broker is started and then perform send and receive processing again.
 - Check for network problems and then perform send and receive processing again.
-

IJMQ_C4002: Read packet failed. {0}

Variable Information

{0}: Supplementary information

Explanation

Data send and receive processing failed.

System Action

An exception is posted to the application.

User Action

Refer to the messages output in the same time band as this message and the message broker log and follow the advised action.

IJMQ_C4003: Error occurred on connection creation {0}.

Variable Information

{0}: Host name and port number

Explanation

Connection generation failed for communicating with the broker.

The broker might not have been started correctly.

System Action

An exception is posted to the application.

User Action

- If JMS functions are used

Check whether the message broker that is communicating is the message broker shown in the variable information {0}.

Check whether it is possible to communicate with the message broker shown in the variable information {0}. If the message broker has not been started, start the message broker.

- If JMS functions are not used

No action is required in response to this message.

IJMQ_C4004: Error occurred on connection close. {0}

Variable Information

{0}: Supplementary information

Explanation

An error occurred when the connection to the message broker was disconnected.

System Action

An exception is posted to the application.

User Action

- This message can be ignored if it was generated when the application ended.

- In cases other than the above, refer to the messages output in the same time band as this message and the message broker log and follow the advised action.

IJMQ_C4007: Durable subscription {0} in use.

Variable Information

{0}: durable subscription name

Explanation

The client mistakenly attempted to delete a durable subscriber that has a currently active TopicSubscriber.

System Action

Processing is interrupted or an exception is posted to the application.

User Action

Check whether TopicSubscriber is closed before calling Session.unsubscribe.

IJMQ_C4010: Read message failed.

Explanation

javax.jms.BytesMessage read processing failed. The read stream might be null or not be long enough.

System Action

An exception is posted to the application.

User Action

Check the status and length of the byte array specified as the read stream.

IJMQ_C4011: Write message failed.

Explanation

The content of the write attempt to `javax.jms.BytesMessage` is incorrect.

The instance might be null.

System Action

An exception is posted to the application.

User Action

Check the content of the data that was attempted to be written to `javax.jms.BytesMessage`.

IJMQ_C4013: Unexpected end of stream when read message - cause: {0}

Variable Information

{0}: Cause of issue

Explanation

EOF was detected while reading the message.

System Action

An exception is posted to the application.

User Action

Take the following actions:

- If `java.io.EOFException` is output as the issue cause shown in the variable information {0}
 - The application might have attempted to read more data than the message text. Check the application.
 - If `java.lang.NullPointerException` is output as the issue cause shown in the variable information {0}
 - Message text read processing might have been performed for a message that has no message text. Check the application.
 - If the message was received from the dead message queue, "true" might have been set for the `imq.destination.DMQ.truncateBody` property. Check the application and, if required, set "false" for the `imq.destination.DMQ.truncateBody` property.
-

IJMQ_C4017: Invalid message format.

Explanation

Either a type not supported by `javax.jms.Message` or a null object was used.

System Action

An exception is posted to the application.

User Action

Check the data type used by `javax.jms.Message`.

IJMQ_C4019: Destination not found: {0}.

Variable Information

{0}: Destination name

Explanation

An incorrect destination was set.

System Action

An exception is posted to the application.

User Action

Check whether the correct value is set for the destination shown in the variable information {0}.

IJMQ_C4020: Temporary destination belongs to a closed connection or another connection - {0}

Variable Information

{0}: Temporary physical storage destination name

Explanation

The temporary physical storage destination in variable information {0} cannot be used.

System Action

An exception is posted to the application.

User Action

Take the following actions:

- After the connection that created the temporary physical storage destination in variable information {0} was closed, that temporary physical storage destination cannot be used. When using that temporary physical storage destination, review the application to check whether the connection that created that temporary physical storage destination was closed.
- Messages that have accumulated in the temporary physical storage destination in variable information {0} cannot be received or referenced from connections other than the connection that was used when the temporary physical storage destination was created. Review the application to check whether the messages that have accumulated in that temporary physical storage destination can be received or referenced from connections other than the connection that was used when the temporary physical storage destination was created.

IJMQ_C4022: Selector invalid: {0}.

Variable Information

{0}: The specified selector statement

Explanation

The specified selector statement is incorrect.

System Action

An exception is posted to the application.

User Action

Check whether the correct value is set for the selector statement shown in the variable information {0}.

IJMQ_C4025: Cannot call this method from a transacted session.

Explanation

Session.recover was called from a session for which transaction processing is in progress.

System Action

An exception is posted to the application.

User Action

Session.recover cannot be executed from a session for which transaction processing is in progress.

Check whether Connection.createSession sets the correct transaction flag.

IJMQ_C4031: MessageConsumer and ServerSession session conflict.

Explanation

Failed to set MessageListener.

System Action

An exception is posted to the application.

User Action

Review the application.

setMessageListener() of the Session class cannot be called in the JMS client application.

IJMQ_C4036: A broker error occurred. : {0}

Variable Information

{0}: Detail information

Explanation

An error was posted from the message broker.

System Action

An exception is posted to the application.

User Action

Refer to the message broker log output in the same time band as this message and follow the advised action.

IJMQ_C4038: {0} - cause: {1}

Variable Information

{0}: Exception information

{1}: Supplementary information

Explanation

Exception {0} was issued during processing.

System Action

An exception is posted to the application.

User Action

Refer to the variable information output at {0} and {1} and in the logs, and fix the problem.

IJMQ_C4039: Cannot delete destination

Explanation

The application attempted to delete a TemporaryQueue or TemporaryTopic that is in use by a consumer.

System Action

An exception is posted to the application.

User Action

If the application deletes a TemporaryQueue or TemporaryTopic, check whether the consumers using these have been closed.

IJMQ_C4041: Reserved word used as property name - {0}

Variable Information

{0}: Property name

Explanation

A reserved word was specified as the property to be added to javax.jms.Message.

System Action

An exception is posted to the application.

User Action

The string {0} cannot be used as a property name to be added to javax.jms.Message because it is a reserved word.

Properties to be added to javax.jms.Message cannot have the names below (not case-sensitive):

- NULL
- TRUE
- FALSE
- NOT
- AND
- OR
- BETWEEN
- LIKE
- IN
- IS

IJMQ_C4042: Illegal first character '{0}' of property name {1}

Variable Information

{0}: Property's first character

{1}: Property name

Explanation

Properties to be added to javax.jms.Message cannot start with the character {0}.

System Action

An exception is posted to the application.

User Action

Ensure the property name.

Properties to be added to javax.jms.Message have to start with one of the characters below:

- Lowercase letters (a-z)
- Uppercase letters (A-Z)

- Underscores ('_')
- Dollar signs (\$)

IJMQ_C4043: Illegal character '{0}' used in property name {1}

Variable Information

- {0}: Property's included character
- {1}: Property name

Explanation

Properties to be added to `javax.jms.Message` cannot contain the character {0}.

System Action

An exception is posted to the application.

User Action

Ensure the property name.

Properties to be added to `javax.jms.Message` can contain only the characters below:

- Digits (0-9) (Please note that this cannot be the first character)
- Lowercase letters (a-z)
- Uppercase letters (A-Z)
- Underscores ('_')
- Dollar signs (\$)

IJMQ_C4046: Browser closed.

Explanation

Processing cannot be performed for a closed queue browser.

System Action

An exception is posted to the application.

User Action

Check whether the queue browser that was being used has been closed.

IJMQ_C4050: Invalid destination name - {0}

Variable Information

- {0}: Detail information

Explanation

An invalid character string was set.

System Action

An exception is posted to the application.

User Action

Check whether the correct value is set for the specified physical storage destination name.

IJMQ_C4051: Invalid delivery parameter. {0}

Variable Information

{0}: Parameter information

Explanation

An invalid parameter was set.

System Action

An exception is posted to the application.

User Action

Refer to the parameter information {0} that is output and check the property value that you attempted to add to `javax.jms.Messages`.

IJMQ_C4052: Client ID is already in use - {0}

Variable Information

{0}: Client ID

Explanation

The specified client ID is already being used.

System Action

An exception is posted to the application.

User Action

Specify a different client ID because the client ID shown in the variable information {0} is already being used.

IJMQ_C4053: Invalid client ID - {0}

Variable Information

{0}: Client ID

Explanation

An invalid client ID was specified.

System Action

An exception is posted to the application.

User Action

Check whether the correct value is set in the client ID shown in the variable information {0}.

IJMQ_C4054: Cannot set client ID, invalid state.

Explanation

The client ID setting failed.

System Action

An exception is posted to the application.

User Action

The relevant connection is already executing a different method.

`Connection.setClientID` must be the first method called by the connection.

IJMQ_C4055: Resource in conflict. Concurrent operations on a session.

Explanation

More than one thread was performing session operations.

System Action

An exception is posted to the application.

User Action

Revise the application.

- More than one thread cannot perform operations simultaneously in the same session.
- If the reception application implements MessageListener and the session acknowledgeMode is AUTO_ACKNOWLEDGE or DUPS_OK_ACKNOWLEDGE, investigate use of CLIENT_ACKNOWLEDGE.

If this error occurred during acknowledge processing, that message is rolled back.

IJMQ_C4056: Received goodbye message from broker.

Explanation

Message broker is being stopped.

System Action

An exception is posted to the application.

User Action

Take the following actions:

- If this message was output when the imqcmd shutdown bkr command was executed, the message broker is being stopped normally and there is no problem.
- If this message was output during application execution, if required, restart the message broker and then execute the application again.

IJMQ_C4059: Cannot perform operation, session is closed.

Explanation

Processing cannot be performed for a closed session.

System Action

Processing is interrupted or an exception is posted to the application.

User Action

Check whether the session that was being used is closed.

IJMQ_C4060: Login failed: {0}

Variable Information

{0}: Detail information

Explanation

Login failed.

System Action

An exception is posted to the application.

User Action

Check whether the password used when logging in to the broker or user shown in the detail information is correct.

IJMQ_C4062: Cannot perform operation, connection is closed.**Explanation**

Processing cannot be performed on a closed connection.

System Action

An exception is posted to the application.

User Action

Make sure that the connection has not been closed.

IJMQ_C4063: Cannot perform operation, consumer is closed.**Explanation**

Processing cannot be performed for a closed consumer.

System Action

An exception is posted to the application.

User Action

Check whether the consumer that was being used is closed.

IJMQ_C4064: Cannot perform operation, producer is closed.**Explanation**

Processing cannot be performed for a closed producer.

System Action

An exception is posted to the application.

User Action

Check whether the producer that was being used is closed.

IJMQ_C4067: Invalid session acknowledgement mode: {0}**Variable Information**

{0}: Detail information

Explanation

An invalid acknowledgeMode was specified.

System Action

An exception is posted to the application.

User Action

Check whether the acknowledgeMode shown in the variable information {0} is correct.

IJMQ_C4069: Cannot perform commit or rollback on an XASession.**Explanation**

commit() and rollback() cannot be called from the XASession class.

System Action

An exception is posted to the application.

User Action

Review the application.

IJMQ_C4071: Invalid method in this domain: {0}

Variable Information

{0}: JMS API method

Explanation

The application attempted to call a JMS API method that cannot be used.

System Action

An exception is posted to the application.

User Action

Revise the application.

IJMQ_C4072: Illegal property name - "" or null.

Explanation

The property name that the application attempted to add to `javax.jms.Message` is null or a blank character string.

System Action

An exception is posted to the application.

User Action

Check the content of the property name that the application attempted to add to `javax.jms.Message`.

IJMQ_C4073: A JMS destination limit was reached. Too many Subscribers/Receivers for {0} : {1} user={2}, broker={3}

Variable Information

{0}: Physical storage destination type
{1}: Physical storage destination name
{2}: User name
{3}: Message broker host name and port number

Explanation

The consumer connected to the physical storage destination shown in the variable information {1} exceeds the maximum number of consumers that can be connected. Therefore, connection is not possible.

System Action

An exception is posted to the application.

User Action

Take the following actions:

- Stop unnecessary reception applications and then execute the application again.
 - The number of consumers that can be connected to the physical storage destination is the sum of `maxNumActiveConsumers` and `maxNumBackupConsumers` property values. Check the values set for `maxNumActiveConsumers` and `maxNumBackupConsumers` at the physical storage destination and, if required, change the values.
-

IJMQ_C4075: Cannot acknowledge messages due to provider connection failover. Subsequent acknowledge calls will also fail until the application calls `session.recover()`.

Explanation

Message check response processing cannot be performed because reconnection to the message broker was performed.

System Action

An exception is posted to the application.

User Action

Execute recover() for the Session class and then perform reception processing again.

IJMQ_C4076: Client does not have permission to create producer on destination: {0} user={1}, broker={2}

Variable Information

{0}: Physical storage destination name
{1}: User name
{2}: Message broker host name and port number

Explanation

Producer creation failed due to lack of producer creation permission.

System Action

An exception is posted to the application.

User Action

Take the following actions:

- To execute the application, use a connection factory where the specified user name has producer creation permission.
- Edit the access control property file to assign producer creation permission to the user, and then execute the application.

IJMQ_C4077: Client is not authorized to create destination: {0} user={1}, broker={2}

Variable Information

{0}: Physical storage destination name
{1}: User name
{2}: Message broker host name and port number

Explanation

Physical storage destination creation failed.

System Action

An exception is posted to the application.

User Action

- If this message is output when the imqcmd command shutdown bkr subcommand is executed:
Refer to "[14.8 Abnormalities in JMS Development/Operations](#)" > "[Cannot Stop the Message Broker](#)", and stop the message broker.
- In all other cases:
 - If automatic generation of the physical storage destination has been disabled:
 - Check whether the physical storage destination has been created, using the imqcmd list dst command (for details, refer to "[10.10 imqcmd](#)" > "[list dst](#)");
If it has not, then use the imqcmd create dst command to create it (for details, refer to "[10.10 imqcmd](#)" > "[create dst](#)").

- Check whether the JMS send destination resources, using the `asadmin list-resource-refs` subcommand (for details, refer to "10.1 `asadmin`" > "10.1.14.35 `list-resource-refs` Subcommand"):

If it has not, then use the `asadmin create-resource-ref` subcommand to specify it (for details, refer to "10.1 `asadmin`" > "10.1.14.33 `create-resource-ref` Subcommand").

- Check whether the use of the JMS send destination resources has been enabled, using the `asadmin get <JMS_send_destination_name>.resources.admin-object-resource.<JNDI_name>.enabled` command (for details, refer to "10.1 `asadmin`" > "10.1.4.1 `get` Subcommand"):

If it has not, then enable it.

- If automatic generation of the physical storage destination has not been disabled:
 - Execute the application using a connection factory in which a user name with permissions to create physical storage destinations was specified.
 - Execute the application after editing the access control properties file and assigning permissions to create physical storage destinations to the user that will be used.

IJMQ_C4079: Client does not have permission to register a consumer on the destination: {0} user={1}, broker={2}

Variable Information

- {0}: Physical storage destination name
- {1}: User name
- {2}: Message broker host name and port number

Explanation

Consumer creation failed due to lack of consumer creation permission.

System Action

An exception is posted to the application.

User Action

Take the following actions:

- To execute the application, use a connection factory where the specified user name has consumer creation permission.
- Edit the access control property file to assign consumer creation permission to the user, and then execute the application.

IJMQ_C4083: Client does not have permission to browse destination: {0} user={1}, broker={2}

Variable Information

- {0}: Physical storage destination name
- {1}: User name
- {2}: Message broker host name and port number

Explanation

Queue browser creation failed due to lack of queue browser creation permission.

System Action

An exception is posted to the application.

User Action

Take the following actions:

- To execute the application, use a connection factory where the specified user name has queue browser creation permission.
- Edit the access control property file to assign queue browser creation permission to the user, and then execute the application.

IJMQ_C4084: User authentication failed: {0}**Variable Information**

{0}: Cause of the error

Explanation

User authentication failed.

System Action

Processing is continued.

User Action

Refer to the message broker log output in the same time band as this message and follow the advised action.

IJMQ_C4086: Unsubscribe failed. Subscriber was not found: {0}**Variable Information**

{0}: durable subscription name

Explanation

The durable Subscription name does not exist.

System Action

An exception is posted to the application.

User Action

Check the durable subscription name shown in the variable information {0}

IJMQ_C4089: Caught JVM Error: {0}**Variable Information**

{0}: Detail information

Explanation

JavaVM returned an error.

System Action

An exception is posted to the application.

User Action

- If "java.lang.OutOfMemoryError" is output as the cause of the error {0}, the Java heap used by the message broker is too small. After the message broker stops, take the action advised in "[14.8 Abnormalities in JMS Development/Operations](#)" > "[Action when the Message Broker Java Heap is too Small](#)".
- If the above does not apply, use the `iscollectinfo` command to collect investigation information, and then contact your service engineer.

IJMQ_C4090: Invalid port number. Broker is not available or may be paused: {0}**Variable Information**

{0}: Detail information

Explanation

The connection destination port number is invalid. The message broker that uses the specified port number might be stopped or paused.

System Action

An exception is posted to the application.

User Action

Check the status of the message broker to which the application connects. If the message broker is stopped or paused, start or reopen the message broker and then execute the application again.

IJMQ_C4095: Message exceeds the single message size limit for the broker or destination: {0} user={1}, broker={2}

Variable Information

- {0}: Physical storage destination name
- {1}: User name
- {2}: Message broker host name and port number

Explanation

The message was discarded because it exceeds the message size that can be held by the physical storage destination shown in the variable information {0}.

System Action

An exception is posted to the application.

User Action

Take the following actions:

- Check the value set for maxBytesPerMsg and, if required, change the value.
- Check the number of properties and the text size of the message being sent.

IJMQ_C4096: Destination is full and is rejecting new messages: {0} user={1}, broker={2}

Variable Information

- {0}: Physical storage destination name
- {1}: User name
- {2}: Message broker host name and port number

Explanation

- The message was discarded because the number of messages held by the physical storage destination shown in the variable information {0} exceeds the number of messages that can be held.
- The message was discarded because the number of messages or the message size that can be held by the message broker was exceeded.

System Action

An exception is posted to the application.

User Action

Take the following actions:

- Check the values specified for maxNumMsg, imq.system.max_size, and imq.system.max_count and, if required, change the values.
- Start the reception application and receive the messages stored at the physical storage destination shown in the variable information {0}.

IJMQ_C4098: Unknown broker service: {0}

Variable Information

- {0}: Service name

Explanation

The message broker service to which the application attempted to connect could not be used.

System Action

An exception is posted to the application.

User Action

- If this message is output when the imqcmd command shutdown bkr subcommand is executed:
Refer to "[14.8 Abnormalities in JMS Development/Operations](#)" > "[Cannot Stop the Message Broker](#)", and stop the message broker.
- All other cases:
Refer to the message broker log output in the same time band as this message and follow the advised action.

13.18.19 IJMQ_C4100 to IJMQ_C4199

IJMQ_C4103: The transaction has been invalidated due to fail over occurred. Please rollback the transaction.

Explanation

The transaction status is invalid.

System Action

An exception is posted to the application.

User Action

Rollback the transaction, then re-execute send and receive.

13.18.20 IJMQ_E200 to IJMQ_E299

IJMQ_E201: Connection closed due to admin requested shutdown: {0}

Variable Information

{0}: Detail information

Explanation

The connection was closed because there was a request by the administrator to stop the message broker. The message broker might have stopped while the application was connected.

System Action

Processing is continued.

User Action

Check the status of the message broker.

IJMQ_E202: Connection closed due to admin requested restart: {0}

Variable Information

{0}: Detail information

Explanation

The connection was closed because there was a request by the administrator to restart the message broker.

IJMQ_E203: Connection closed due to broker error: {0}

Variable Information

{0}: Detail information

Explanation

The connection was closed because a message broker error occurred.

IJMQ_E206: Connection closed. The connection is closed due to a network problem, broker crashed, or internal error: {0}

Variable Information

{0}: Detail information

Explanation

The connection to the message broker was closed.

System Action

An exception is posted to the application.

User Action

- The message broker might have been stopped while the application was connected to it. Check the start status of the message broker.
- Check whether there is a network environment error.

If the problem persists, use the `iscollectinfo` command to collect investigation information, and then contact your service engineer.

13.18.21 IJMQ_E300 to IJMQ_E399

IJMQ_E301: Connection reconnected to the broker: {0}

Variable Information

{0}: Detail information

Explanation

Reconnection to the message broker occurred.

System Action

Processing is continued.

13.18.22 IJMQ_E400 to IJMQ_E499

IJMQ_E401: Connection reconnect to the broker failed: {0}

Variable Information

{0}: Detail information

Explanation

Reconnection to the message broker failed. The message broker might have been stopped while the application was connected to it.

System Action

An exception is posted to the application.

User Action

Check the start status of the message broker.

13.18.23 IJMQ_I100 to IJMQ_I199

IJMQ_I107: Connection recover state: {0}, broker: {1}

Variable Information

{0}: Status of the connection to the message broker
{1}: Message broker information

Explanation

This message shows the status of the connection to the message broker.

System Action

Processing is continued.

13.18.24 IJMQ_I500 to IJMQ_I599

IJMQ_I500: Caught JVM Exception: {0}

Variable Information

{0}: Exception information

Explanation

The exception {0} occurred.

System Action

An exception is posted to the application.

User Action

- If {0} is "java.io.EOFException":

Check the message broker log - if IJMQ_B1065 was output at the same time as this message and IJMQ_B0059 was output to the variable information of IJMQ_B1065, then there is no need to take action.

- In all other cases:

Refer to the messages output in the same time band as this message and the message broker log and follow the advise shown in the [User Action].

13.18.25 IJMQ_S2000 to IJMQ_S2099

WARNING: IJMQ_S2003: An error occurred configuring the logging system: {0}

Variable Information

{0}: Cause of issue

Explanation

Log output processing failed.

System Action

Processing is continued.

User Action

Check the cause of issue shown in the variable information {0} and, if required, fix the problem.

13.18.26 IJMQ_S3000 to IJMQ_S3099

ERROR: IJMQ_S3001: Could not open logging device {0} {1}

Variable Information

{0}: Log output destination file
{1}: Cause of the error

Explanation

Open processing failed for the log output destination file.

System Action

Processing is continued.

User Action

- Check the error cause shown in the variable information {1} and, if required, fix the problem.
- **Windows32/64**
If the message broker functions as a service, then check whether an account that has administrator privileges is set as the service logon account.

ERROR: IJMQ_S3002: Could not log message to {0}. {1}

Variable Information

{0}: Log type (FileLogHandler for message broker log, or AccessLogHandler for access log)
{1}: Cause of the error

Explanation

Log output failed.

System Action

Processing is continued.

User Action

Use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: IJMQ_S3019: Uncaught exception {0} occurred in thread {1}: {2}

Variable Information

{0}: Exception information
{1}: Thread name
{2}: Cause of issue

Explanation

The exception in variable information {0} occurred.

System Action

Processing is interrupted or an exception is posted to the application.

User Action

- If "Java heap space" is output as the exception information shown in the variable information {0}, the Java heap used by the message broker is too small. After the message broker stops, take the action advised in "[14.8 Abnormalities in JMS Development/Operations](#)" > "[Action when the Message Broker Java Heap is too Small](#)".
- If the problem persists, use the `iscollectinfo` command to collect investigation information, and then contact your service engineer.

13.18.27 IJMQ_W23000 to IJMQ_W2099

IJMQ_W2003: Broker not responding [{0}] for {1} seconds. Still trying..., broker addr={2}. {3}

Variable Information

- {0}: Request information
- {1}: Wait time
- {2}: Message broker host name and port number
- {3}: Connection information

Explanation

There is no response from the message broker {2}.

System Action

Processing is continued.

User Action

Check the connection service status for the message broker.

13.19 Messages that Contain "ijna" in the Message ID

13.19.1 ijna10000 to ijna10099

INFO: ijna10000: The Interstage Java EE Node Agent service has started.

Explanation

The Interstage Java EE Node Agent service has started.

INFO: ijna10001: The Interstage Java EE Node Agent service has stopped.

Explanation

The Interstage Java EE Node Agent service has stopped.

ERROR: ijna10002: The Interstage Java EE Node Agent service cannot be started.

Explanation

The Interstage Java EE Node Agent service cannot be started.

System Action

The Interstage Java EE Node Agent service cannot be started due to an error.

User Action

Refer to the message in the previous error message to rectify this error.

If there is no message, then refer to the files below and check whether they contain the message that states the cause of the error.

- System log/event log
- Interstage Java EE Node Agent service server log

ERROR: ijna10003: The Interstage Java EE Node Agent service cannot be stopped.

Explanation

The Interstage Java EE Node Agent service cannot be stopped

System Action

The Interstage Java EE Node Agent service cannot be stopped due to an error.

User Action

Refer to the message in the previous error message to rectify this error.

If there is no message, then refer to the files below and check whether they contain the message that states the cause of the error.

- System log/event log
- Interstage Java EE Node Agent service server log

ERROR: ijna10004: Too many operands were specified.

Explanation

Too many operands were specified.

System Action

The operation will fail.

User Action

Execute the command again in accordance with the command format.

ERROR: ijna10005: There are no permissions for executing the command.

Explanation

There are no permissions for executing the command.

System Action

The operation will fail.

User Action

Execute the command again logged on as a user with administrator permissions.

ERROR: ijna10006: The specified service does not exist. name={0} detail={1}

Variable Information

- {0}: Service name
- {1}: System error number

Explanation

The specified service does not exist.

System Action

The operation will fail.

User Action

- A system error number will be shown in this message. Contact the system administrator.
- The structure of registry information related to the Interstage Java EE Node Agent service may be incomplete or corrupt. Either restore from a back file of the registry or reinstall the product.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

**ijna10007: An Interstage Java EE Node Agent service cannot connect to the service control manager.
name={0} func={1} detail={2}**

Variable Information

- {0}: Service name
- {1}: Error information
- {2}: System error number

Explanation

An Interstage Java EE Node Agent service cannot connect to the service control manager.

System Action

The Interstage Java EE Node Agent service failed to initialize. The process cannot continue.

User Action

The error may be related to a registry problem or it may be a system error returned by the operating system.

- A system error number is displayed in this message. Contact the system administrator.
- The structure of registry information related to the Interstage Java EE Node Agent service may be incomplete or corrupt. Either restore from the back file of the registry or reinstall the product.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

**ERROR: ijna10008: The Interstage Java EE Node Agent service closing event cannot be created.
detail={0}**

Variable Information

- {0}: System error number

Explanation

The Interstage Java EE Node Agent service closing event cannot be created. Possible causes to consider are a system error returned by the operating system, or a lack of resources.

System Action

The Interstage Java EE Node Agent service failed to initialize. The process cannot continue.

User Action

- A system error number will be displayed in this message. Contact the system administrator.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

INFO: ijna10009: The Interstage Java EE Node Agent service is already started.

Explanation

The Interstage Java EE Node Agent service is already started. The operation may have been executed while this service was in the process of starting.

System Action

There will be no impact on the system and the service will continue.

ERROR: ijna10010: Insufficient memory.**Explanation**

There is insufficient memory to execute the command.

System Action

The operation will fail.

User Action

Close applications to free memory and then execute it again.

ERROR: ijna10011: A command that was called internally cannot be executed. func={0} detail={1}**Variable Information**

{0}: Error information

{1}: System error number

Solaris32/64 **Linux32/64**

No error information or system error number will be produced.

Explanation

An internal command cannot be executed.

System Action

The operation will fail.

User Action

The following commands may not exist, or there may be no permissions to access the file:

- asadmin command
- ijdasstat command
- ijnastat command

Take the following action:

- Check that the above command exists. If the above command does not exist, it may have been deleted or the product may not have been installed correctly. Install the product again.
- If the above command exists, check its access permissions.
- If access permissions are adequate, the above command may have been corrupted, reinstall the product.
- A system error number is included with this message. Contact the system administrator.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijna10012: Cannot find a command that was called internally. func={0} detail={1}**Variable Information**

{0}: Error information

{1}: System error number

Explanation

An internal command cannot be found. The file required for the Interstage Java EE Node Agent service is incomplete.

System Action

The operation will fail.

User Action

The following commands may not exist:

- asadmin command
- ijdastat command

Take the following action:

- Check that the above command exists.
- The ijadmin command may not exist, or it may have been deleted or the product may not be installed correctly, if so install the product again.
- A system error number is included with this message. Contact the system administrator.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijna10013: Access to the service control manager was denied.

Explanation

Access to the service control manager was denied.

System Action

The operation will fail.

User Action

- The structure of registry information related to the Interstage Java EE Node Agent service may be incomplete or corrupt. Either restore from the back file of the registry or reinstall the product.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijna10014: Cannot find the registry. key={0} entry={1} func={2} detail={3}

Variable Information

{0}: Registry key
{1}: Registry entry name
{2}: Error information
{3}: System error number

Explanation

The registry key and the registry entry cannot be found.

System Action

The operation will fail.

User Action

- A system error number is included with this message. Contact the system administrator.
- The structure of registry information related to the Interstage Java EE Node Agent service may be incomplete or corrupt. Either restore from the back file of the registry or reinstall the product.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijna10015: An error occurred in a command called internally. code={0}

Variable Information

{0}: End code

Explanation

An error occurred with an internal command.

System Action

The operation will fail.

User Action

This message reports problems with processing of internal commands.

Refer to the files below and check whether they contain the message that states the cause of the error.

- System log/event log
- Interstage Java EE Node Agent service server log

ERROR: ijna10016: A system error was returned by the operating system. func={0} detail={1}

Variable Information

{0}: Error information
{1}: System error number

Explanation

A system error has been returned by the operating system.

System Action

The operation will fail.

User Action

- A system error number is included with this message. Contact the system administrator.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

INFO: ijna10017: The operation that was requested is already running. control={0}

Variable Information

{0}: Control code

Explanation

The requested operation is already running.

System Action

System processing is not affected and can continue.

ERROR: ijna10018: The Interstage Java EE Node Agent service did not stop normally.

Explanation

The Interstage Java EE Node Agent service did not stop normally.

System Action

The service stopped however the command that was executed may not have completed.

User Action

Refer to the message in the previous error to rectify this error.

INFO: ijna10019: The Interstage Java EE Node Agent service has already stopped.

Explanation

The Interstage Java EE Node Agent service has already stopped.

System Action

System processing is not affected.

ERROR: ijna10020: The Interstage Java EE Node Agent service is disabled. name={0}

Variable Information

{0}: Service name

Explanation

The Interstage Java EE Node Agent service is disabled.

System Action

The operation will fail.

User Action

- In [Control Panel] > [Admin tool] > [Services], check the status of the service name shown in the variable information. If the status is "invalid," change the start-up type in the [General] tab to "Automatic" and perform the operation again.
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijna10021: The Interstage Java EE Node Agent service has been deleted.

Explanation

The Interstage Java EE Node Agent service has been deleted.

System Action

The operation will fail.

User Action

Install the product again.

ERROR: ijna10022: There is no response from the Interstage Java EE Node Agent service.

Explanation

There is no response from the Interstage Java EE Node Agent service.

System Action

The operation will fail.

User Action

- The Interstage Java EE Node Agent service may have stopped responding due to there being a high load on the system. Check the system status.
- Refer to the event viewer to check that the system is operating normally.

ERROR: ijna10023: The Interstage Java EE Node Agent service operation failed.

Explanation

The Interstage Java EE Node Agent service operation failed.

System Action

The operation will fail.

User Action

Refer to the event viewer to check that the system is operating normally.

Refer to the files below and check whether they contain the message that states the cause of the error.

- System log/event log
- Interstage Java EE Node Agent service server log

Refer to "[14.2.1 Operating Environment-Related Errors](#)" to check whether the cause of the startup failure is mentioned.

ERROR: ijna10024: A request to stop the Interstage Java EE Node Agent service was made while it was starting up.

Explanation

A request to stop the service was made while it was starting up.

System Action

The operation will fail.

User Action

Wait for the service to complete its start up process and then execute the command again.

INFO: ijna10025: A request to stop the Interstage Java EE Node Agent service was made while the system was shutting down.

Explanation

A request to stop the service was made while the system was shutting down.

System Action

Processing stops

ERROR: ijna10027: An error occurred while acquiring authentication information. func={0} detail={1}

Variable Information

- {0}: Error information
- {1}: System error number

Explanation

An error occurred in the processing to fetch the authentication information.

System Action

The operation will fail.

User Action

- This message shows the system error number. Contact your system administrator.
- If the error information is "decryption", the error occurred during password decryption processing. Since the error might have occurred for the file system, check for access problems to the files in the Java EE shared directory under the Interstage install directory.

Windows32/64

Make sure that the User specified for the Interstage Java EE Node Agent service login account has Administrators privileges.

- In the cases below, the Java EE install environment might have become corrupted. Use the ijinit command to initialize the Java EE operating environment.
 - If the error information is "ReadFile" and the system error number is "0"
 - If the error information is "CreateFile" and the system error number is "2"

- If the error information is "ijna_get_environment_value"
- If the error information is "ijna_get_plaintext"
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijna10028: An error occurred while setting environment. func={0} detail={1}**Variable Information**

{0}: Error information
{1}: System error number

Explanation

An error occurred while setting the command environment.

System Action

Processing is interrupted.

User Action

- This message shows the system error number. Contact your system administrator.
- In the cases below, the Java EE install environment might have become corrupted. Use the ijinit command to initialize the Java EE operating environment.
 - If the error information is "ijna_get_environment_value"
- If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ijna10030: The command has already been executed.**Explanation**

Command execution failed because the ijnasstart or ijnastop command is already being executed.

System Action

The operation will fail.

User Action

Check the Interstage Java EE Node Agent Service status and, if required, execute the command again.

If this message is output when no other commands are being executed, then a directory used for locking might remain due to forcible termination of the command. Delete the directory below if it exists even when the ijnastart and ijnastop commands are not being executed.

- /tmp/ijna-key

ERROR: ijna10031: An error occurred while getting Interstage Java EE Node Agent service status.**Explanation**

An error occurred obtaining the status of the Interstage Java EE Node Agent service. The Interstage Java EE Node Agent service may have hung up.

System Action

Processing is interrupted.

User Action

Wait for a few moments, then check the status of the Interstage Java EE Node Agent service using the ijnastat command.

ERROR: ijna10033: The evaluation period passed. Interstage Application Server cannot be used. (Interstage Java EE) Please buy the product version when continuously using it.

Explanation

The Interstage Java EE evaluation period has expired.

User Action

Purchase the product version.

13.20 Messages that Contain "IJSETOPID" in the Message ID

13.20.1 IJSETOPID000 to IJSETOPID099

INFO: ISJEE_IJSETOPID001: The service operation user was changed to {0}.

Variable Information

{0}: User name

Explanation

The service operator user was changed to {0}.

INFO: ISJEE_IJSETOPID002: ijsetoperatorid executed successfully.

Explanation

The ijsetoperatorid command was executed successfully.

ERROR: ISJEE_IJSETOPID003: File {0} not found.

Variable Information

{0}: File name

Explanation

The command failed because file {0} does not exist.

System Action

Processing is interrupted.

User Action

The following might have occurred:

- File {0} was deleted.
- An error occurred while referencing the shared disk.

Make sure that file {0} exists, and recover the status so that the shared disk can be referenced. If this status cannot be recovered, then use the iscollectinfo command to collect troubleshooting information, and send it to a Systems Engineer.

WARNING: ISJEE_IJSETOPID004: The environment was restored.

Explanation

The environment was restored.

System Action

Processing is continued.

User Action

No action is necessary if an error does not occur after this message is output.

ERROR: ISJEE_IJSETOPID005: The specified option is invalid.

Explanation

The command failed because the method used to specify the option is invalid.

System Action

Processing is interrupted.

User Action

Refer to the manual, then specify a valid option and re-execute the command.

ERROR: ISJEE_IJSETOPID006: The username needs to be specified with the -u option.

Explanation

The command failed because username was not specified.

System Action

Processing is interrupted.

User Action

Refer to the manual, then specify a valid user name and re-execute the command.

ERROR: ISJEE_IJSETOPID007: The specified username is invalid.

Explanation

The command failed because an invalid username was specified.

System Action

Processing is interrupted.

User Action

Refer to the manual, then specify a valid user name and re-execute the command.

ERROR: ISJEE_IJSETOPID008: The specified user does not exist.

Explanation

The command failed because an inexistent username was specified.

System Action

Processing is interrupted.

User Action

Refer to the manual, then specify an existing user name and re-execute the command.

ERROR: ISJEE_IJSETOPID009: Primary group of the specified user is not Interstage operation group.

Explanation

The primary group of the specified user is not the Interstage operator group.

System Action

Processing is interrupted.

User Action

Specify a user for whom the primary group is the Interstage operator group, then re-execute the command.

ERROR: ISJEE_IJSETOPID010: The Interstage Java EE DAS service has not been stopped.

Explanation

The Interstage Java EE DAS service has not been stopped.

System Action

Processing is interrupted.

User Action

Stop the Interstage Java EE DAS service, then re-execute the command.

ERROR: ISJEE_IJSETOPID011: The Interstage Java EE Node Agent service has not been stopped.

Explanation

The Interstage Java EE Node Agent service has not been stopped.

System Action

Processing is interrupted.

User Action

Stop the Interstage Java EE Node Agent service, then re-execute the command.

ERROR: ISJEE_IJSETOPID012: The Message Queue Broker has not been stopped.

Explanation

The message broker has not been stopped.

System Action

Processing is interrupted.

User Action

Stop the message broker, then re-execute the command.

ERROR: ISJEE_IJSETOPID013: The status of service was not able to be acquired.

Explanation

The service status cannot be obtained.

System Action

Processing is interrupted.

User Action

An error might have occurred in the resources under the Java EE common directory - reboot the system, then re-execute the command.

If this message is still output after the system is rebooted, then initialize the Java EE operating environment using the ijinit command and re-execute the command (the ijinit command initializes/deletes the definition information and resources).

If this message is still output after the ijinit command is executed, then use the iscollectinfo command to collect troubleshooting information and send it to a Systems Engineer.

INFO: ISJEE_IJSETOPID014: The command is being executed.

Explanation

The command failed because the ijsetoperatorid command is running.

System Action

Processing is interrupted.

User Action

Wait for a few moments, then re-execute the command.

ERROR: ISJEE_IJSETOPID015: An error occurred when change file's owner and group. File name={0}

Variable Information

{0}: File name

Explanation

The command failed due to an error when changing the file's owner and group.

System Action

Processing is interrupted.

User Action

The following might have occurred:

- File {0} was deleted.
- An error occurred while referencing the shared disk.
- File {0} was being used by another program.

Make sure that file {0} and its status exist, recover the latter so that the file can be changed, then re-execute the command. If the status cannot be recovered, then use the iscollectinfo command to collect troubleshooting information, and send it to a Systems Engineer.

13.21 Messages that Contain "IJSETSCMD" in the Message ID

13.21.1 IJSETSCMD000 to IJSETSCMD099

INFO: ISJEE_IJSETSCMD001: ijsetsecuritymode executed successfully.

Explanation

The ijsetsecuritymode command was executed successfully.

ERROR: ISJEE_IJSETSCMD002: Internal Error: {0}[File name={1}]

Variable Information

{0}: Detail information

- A necessary command doesn't exist.
- Error occurred during ijsetoperatorid process.

{1}: File name

Explanation

An internal error occurred:

- A necessary command does not exist.
- An error occurred while the ijsetoperatorid command was running.

System Action

Processing is interrupted.

User Action

- The following might have occurred:

- An error occurred while referencing the shared disk:

Make sure that file { 1 } exists, then recover its status so that the shared disk can be referenced. If the status cannot be recovered, then use the iscollectinfo command to collect troubleshooting information, and send it to a Systems Engineer.

- If the error occurred while the ijsetoperatorid command was running, then refer to the command log file.

ERROR: ISJEE_IJSETSCMD003: The command is being executed.

Explanation

The command failed because the ijsetsecuritymode command is running.

System Action

Processing is interrupted.

User Action

Wait for a few moments, then re-execute the command.

ERROR: ISJEE_IJSETSCMD004: An error occurred when change file's group. File name={0}

Variable Information

{0}: File name

Explanation

The command failed due to an error when changing the file's group.

System Action

Processing is interrupted.

User Action

The following might have occurred:

- File {0} was deleted.
- An error occurred while referencing the shared disk.
- File {0} was being used by another program.

Make sure that file {0} and its status exist, recover the latter so that the file can be changed, then re-execute the command.

If the status cannot be recovered, then use the iscollectinfo command to collect troubleshooting information, and send it to a Systems Engineer.

13.22 Messages that Contain "INSTANCE" in the Message ID

13.22.1 INSTANCE1000 to INSTANCE1099

INSTANCE1001: Failed to load deployment descriptor for: {0}

Variable Information

{0}: Application name

Explanation

An error occurred during application deployment descriptor load processing.

System Action

Processing is interrupted.

User Action

Take action based on the information that is output subsequently.

INSTANCE1002: No Such Application : appld = {0}

Variable Information

{0}: Application name

Explanation

The specified application or submodule does not exist.

System Action

Processing is interrupted.

User Action

Specify an existing application name or submodule name and then execute the processing again.

INSTANCE1005: I/O error while loading deployment descriptor for: {0}

Variable Information

{0}: Application name

Explanation

Failed to read the deployment descriptor.

System Action

Processing is continued.

User Action

The specified application might have been undeployed.

The definition information is updated through repository synchronization, so restart the JServer cluster where necessary.

13.23 Messages that Contain "IOP" in the Message ID

13.23.1 IOP00010200 to IOP00010299

IOP00010202: (UNKNOWN) Unknown user exception thrown by the server - exception: {0}; message: {1}

Variable Information

{0}: Exception information

{1}: Message

Explanation

A RuntimeException was detected.

System Action

An exception is posted to the application.

User Action

Refer to the exception information {0} and the message {1} and fix the problem.

If "Caused by: org.omg.CORBA.portable.RemarshalException" was output with the stack trace, a network error might have occurred. If this error occurs frequently, make sure that the network environment is reliable.

If "Caused by: org.omg.CORBA.COMM_FAILURE:" was output with the stack trace, identify the primary cause of the error and then take action.

13.23.2 IOP00100000 to IOP00100099

IOP00100008: (BAD_PARAM) string_to_object conversion failed due to bad address

Explanation

The URL schema format is incorrect.

System Action

An exception is posted to the application.

User Action

Revise the URL schema of the JNDI name.

IOP00100009: (BAD_PARAM) string_to_object conversion failed due to bad schema specific part

Explanation

The name specified in the URL schema cannot be found.

System Action

An exception is posted to the application.

User Action

Check whether an object is registered to the naming service specified in the URL schema.

If an object is registered to the naming service, refer to the stack trace and the exception information that is output as "Caused by:" to identify the cause of the error and fix the problem.

IOP00100029: (BAD_PARAM) Profile ID does not define a known profile or it is impossible to add components to that profile

Explanation

A valid IIOP listener does not exist.

System Action

An exception is posted to the application. If an IJServer cluster has been used, the error will be notified when the IJServer cluster starts up.

User Action

Check the status of the IIOP listener.

13.23.3 IOP00110200 to IOP00110299

IOP00110230: (BAD_PARAM) {0} is not a valid positive decimal integer for {1}

Variable Information

{0}: Value set for the parameter

{1}: Parameter type

Explanation

An invalid value was set for the `com.sun.corba.ee.transport.ORBTCPCConnectTimeouts` or the `com.sun.corba.ee.transport.ORBTCPTimeouts` property.

System Action

An exception is posted to the application. If an IJServer cluster has been used, the error will be notified when the IJServer cluster starts up.

User Action

Correct the value of the `com.sun.corba.ee.transport.ORBTCPCConnectTimeouts` or the `com.sun.corba.ee.transport.ORBTCPTimeouts` property.

IOP00110231: (BAD_PARAM) Timeout data must be 4 positive decimal integers separated by :

Explanation

The format of the value specified for the `com.sun.corba.ee.transport.ORBTCPTimeouts` is invalid.

System Action

An exception is posted to the application. If an IJServer cluster has been used, the error will be notified when the IJServer cluster starts up.

User Action

The method used to specify the `com.sun.corba.ee.transport.ORBTCPTimeouts` is invalid, so correct it.

13.23.4 IOP00110300 to IOP00110399

IOP00110397: (BAD_PARAM) An invalid value ({0}) has been set for {1}.

Variable Information

{0}: Value set for the property

{1}: Property name

Explanation

The value that was set for the property is invalid.

System Action

An exception is posted to the application. If an IJServer cluster has been used, the error will be notified when the IJServer cluster starts up.

User Action

Review the value that was set for property name {1}.

IOP00110398: (BAD_PARAM) An invalid value ({0}) has been set for {1}.

Variable Information

{0}: Value that was set for the parameter

{1}: Parameter type

Note: If a value except true/false was set for elapsed, "isElapsed" will be output.

Explanation

An invalid value has been set for the `com.sun.corba.ee.transport.ORBTCPCConnectTimeouts` property.

System Action

An exception is posted to the application. If an IJServer cluster has been used, the error will be notified when the IJServer cluster starts up.

User Action

Change the `com.sun.corba.ee.transport.ORBTCPCConnectTimeouts` property value.

IOP00110399: (BAD_PARAM) The format of the value specified for the property is invalid.

Explanation

The format of the value that was specified for the `com.sun.corba.ee.transport.ORBTCPCConnectTimeouts` property is invalid.

System Action

An exception is posted to the application. If an IJServer cluster has been used, the error will be notified when the IJServer cluster starts up.

User Action

The method that was used to specify the `com.sun.corba.ee.transport.ORBTCPCConnectTimeouts` property is invalid, so correct it.

13.23.5 IOP00111200 to IOP00111299

IOP00111203: (BAD_PARAM) Attempt to create IIOAddress with port {0}, which is out of range

Variable Information

{0}: Connection destination port number

Explanation

An invalid value was set for the IIO listener port number.

System Action

An exception is posted to the application. If an IJServer cluster has been used, the error will be notified when the IJServer cluster starts up.

User Action

If this message is output when the IJServer cluster starts up, check whether an invalid value was set for the IIO listener port number. If this message is output when the client application is executed, check whether an invalid value was set for the port number specified as the connection destination. An integer between 1 and 65535 must be used for the port number.

13.23.6 IOP00410200 to IOP00410299

IOP00410201: (COMM_FAILURE) Connection failure: socketType: {0}; hostname: {1}; port: {2}

Variable Information

{0}: Socket type

{1}: Connection destination machine name or IP address

{2}: Connection destination port

Explanation

The connection to the connection destination machine name or IP address {1} and connection destination port {2} failed.

System Action

The connection is retried in accordance with the `com.sun.corba.ee.transport.ORBTCPCConnectTimeouts` property value. If the connection fails even after the retry, an exception is posted to the application.

User Action

Take one of the following actions:

- Check whether the host name/IP address or port number specified as the connection destination is invalid.

- Check whether the Java EE application in the connection destination system has started.
- If the machine name was output to the connection destination machine name or IP address {1}, check whether the hosts file content or DNS settings are invalid.
- Check whether the firewall settings have been disabled in the connection destination system or somewhere en route.
- If 2809 was output in connection destination port {2}, check whether the port was specified in INS format.
- If multiple host names/IP addresses were defined on the connection destination machine, check whether the host names/IP addresses specified for the IIOP listener and the host names/IP addresses specified as the connection destination match.
- If a message or exception information was output at the same time as this message, check that message or exception information and then take the required action.
- If none of the above applies, collect the network traces and check whether an error has occurred in the network to connection destination machine name or IP address {1}.

IOP00410210: (COMM_FAILURE) Received a GIOP MessageError, indicating header corruption or version mismatch:

Explanation

The message could not be received correctly at the connection destination.

System Action

IIOP communication is interrupted, and the connection is closed.

User Action

Take the following actions:

- If the IIOP communication load balancing feature was used for linkage with IPCOM, check the following:
 - Was the non-fragment mode set?
 - Was an error discovered in IPCOM?
- Check whether there is a problem in the network environment.

IOP00410216: (COMM_FAILURE) Unable to create IIOP listener on the specified host/port: {0}/{1}

Variable Information

{0}: IIOP listener network address (machine name or IP address) (see **note**)

{1}: IIOP listener port number

Note: If the IIOP listener network address is not yet set (0.0.0.0), the address is output as "all interfaces".

Explanation

The IIOP listener cannot be created using the specified network address (machine name or IP address) and port number.

System Action

An exception is posted to the application. If an IJServer cluster has been used, the error will be notified when the IJServer cluster starts up.

User Action

Check the IIOP listener network address (machine name or IP address) and the IIOP listener port number.



Note

-
- For the network address, specify either an IP address or a host name that can be resolved by DNS.
 - If the IIOP communication load balancing function linked to IPCOM is used, the virtual host name must be specified as the network address. For details on how to set the IIOP listener network address, refer to "Load Balancing Using IPCOM".

- Tune the port number.
 - If a value other than the system property `#{IOP_LISTENER_PORT}` is specified for the IOP listener port in an IIServer cluster, specify the system property `#{IOP_LISTENER_PORT}`.
-

IOP00410218: (COMM_FAILURE) IOException in accept: {0}

Variable Information

{0}: Detail information

Explanation

An IO exception occurred during accept processing.

System Action

An exception is posted to the application.

User Action

Identify the cause from the exception information that is output for 'Caused by:' after the stack trace, then take action. If 'Caused by: java.io.IOException: Too many open files' is output after the stack trace, it means there are insufficient file descriptors. Review the file descriptor settings.

IOP00410219: (COMM_FAILURE) Communications timeout waiting for response. Exceeded {0} milliseconds

Variable Information

{0}: Response wait time value (in milliseconds)

Explanation

A timeout was issued at the client side because there was no response to the request issued to the server within the response wait time.

System Action

An exception is posted to the application.

User Action

If the server side processing takes too long or if processing is hung, revise the processing at the server side.

If the request response wait time at the client side is short, take action such as increasing the [com.sun.corba.ee.transport.ORBWaitForResponseTimeout](#) property value to increase the request response wait time.

If this message was posted, an exception was posted to the client application. If required, resend the request from the client application.

IOP00410220: (COMM_FAILURE) Communications retry timeout. Exceeded {0} milliseconds

Variable Information

{0}: Total wait time (milliseconds)

Explanation

A timeout occurred during connection processing.

System Action

An exception is posted to the application.

User Action

Check the message that was notified immediately before this message to remove the cause of the exception.

IOP00410225: (COMM_FAILURE) Write of message exceeded TCP timeout : max wait time = {0} ms, total time spent blocked, waiting to write = {1} ms.

Variable Information

- {0}: Total wait time (in milliseconds)
- {1}: Total elapsed time (in milliseconds)

Explanation

A timeout occurred while writing to the socket.

System Action

If requests are being sent from the client, IIOP communication is interrupted and an exception will be notified to the client application. If responses are being sent from the server, IIOP communication is interrupted. The client is not notified of the fact that the server has interrupted IIOP communication, therefore the client application does not return until IOP00410229 or IOP00410219 occurs.

User Action

Take the following action:

- If the value of the [com.sun.corba.ee.transport.ORBTCPTimeouts](#) property is small, increase the value.
- Check whether the network between the server and the client has been disconnected.
- If this error occurs frequently, revise the network environment and build a highly reliable network.
- Check the server application GC time, revise the JVM option heap size specification, and adjust so that the GC time is within the timeout time.

IOP00410227: (COMM_FAILURE) Unexpected exception when writing with a temporary selector: bytes written = {0}, total bytes requested to write = {1}, time spent waiting = {2} ms, max time to wait = {3}.

Variable Information

- {0}: Length of data already sent (bytes)
- {1}: Total data length (bytes)
- {2}: Wait time (in milliseconds)
- {3}: Maximum wait time (in milliseconds)

Explanation

An unexpected exception occurred during writing to the socket.

System Action

If requests are being sent from the client, IIOP communication is interrupted and an exception will be notified to the client application. If responses are being sent from the server, IIOP communication is interrupted. The client is not notified of the fact that the server has interrupted IIOP communication, therefore the client application does not return until IOP00410229 or IOP00410219 occurs.

User Action

The connection may have been closed during writing to the socket. Check the message that was notified to the connection destination to remove the cause of the exception.

IOP00410229: (COMM_FAILURE) Blocking read failed, expected to read additional bytes: max wait time = {0}ms total time spent waiting = {1}ms

Variable Information

- {0}: Total wait time (in milliseconds)
- {1}: Total elapsed time (in milliseconds)

Explanation

A timeout occurred while reading from the socket.

System Action

IIOp communication is interrupted, and the connection is closed.

User Action

Take the following action:

- If the value of the `com.sun.corba.ee.transport.ORBTCPTimeouts` property is small, increase the value.
- Check whether the network between the server and the client has been disconnected.
- If this error occurs frequently, revise the network environment and build a highly reliable network.
- If the IIOp communication load balancing feature was used for linkage with IPCOM, check that the non-fragment mode was set.

IOP00410233: (COMM_FAILURE) Ignoring request to read a message which exceeds read size threshold of {0} bytes, requested size was {1}. Use ORB property - `Dcom.sun.corba.ee.transport.ORBMaximumReadByteBufferSize=<# of bytes>` to set threshold higher.

Variable Information

{0}: Maximum reception buffer size

{1}: Reception data size

Explanation

The data cannot be received because the size of the sent data exceeds the maximum reception buffer size.

System Action

IIOp communication is interrupted, and the connection is closed.

User Action

Perform tuning so that the maximum message splitting size is smaller than the maximum buffer size for receiving messages.

If the IIOp communication load balancing feature was used for linkage with IPCOM, tune so that the receive buffer size is greater than the connection destination send data size.

- Changing the maximum buffer size for receiving messages

Set the JVM option as shown below for the container that output this message. The `asadmin` command with the `create-jvm-options` subcommand can be used to set JVM options.

```
-Dcom.sun.corba.ee.transport.ORBMaximumReadByteBufferSize=Value
```

- Changing the maximum message splitting size

- If the connection destination is a client

Change the `com.sun.corba.ee.giop.ORBFragmentSize` property.

```
-Dcom.sun.corba.ee.giop.ORBFragmentSize=Value
```

- If the connection destination is a container

Change the ORB maximum message splitting size. The Interstage Java EE Admin console or the `asadmin` command can be used to change the ORB settings. For details, refer the "Interstage Java EE Admin Console Help".

Also refer to "`asadmin`" > "set subcommand" and "Definition items of the `configs.config.iiop-service`".

13.23.7 IOP00410800 to IOP00410899

IOP00410801: (COMM_FAILURE) IOException during cancel request:

Explanation

An `IOException` was detected while sending a cancel request message.

System Action

An exception is posted to the application.

User Action

Refer to the stack trace and the exception information that is output as "Caused by:" to identify the cause of the error and fix the problem.

13.23.8 IOP00511200 to IOP00511299

IOP00511201: (INV_OBJREF) IOR must have at least one IIOp profile

Explanation

There is no IOR in the IIOp listener.

System Action

An exception is posted to the application. If an IJServer cluster has been used, the error will be notified when the IJServer cluster starts up.

User Action

Check the IIOp listener status.

13.23.9 IOP00710200 to IOP00710299

IOP00710208: (INTERNAL) Unable to determine local hostname from `InetAddress.getLocalHost().getHostName()`

Explanation

Could not get the host name using `InetAddress.getLocalHost().getHostName()`.

System Action

An exception is posted to the application

User Action

Check whether the hosts file content or DNS settings are invalid.

IOP00710220: (INTERNAL) Error in GIOP magic

Explanation

The message could not be received correctly.

System Action

A message error is posted to the connection destination.

User Action

Resend the request from the client side.

If IOP00410225 or IOP00410229 is notified to the server or client at the same time as this message is received, then it means that a data inconsistency has occurred due to a send/receive failure. In this case, this can be fixed by addressing those messages. For details, refer to "IOP00410225" and "IOP00410229".

IOP00710254: (INTERNAL) The `BadKind` exception should never occur here

Explanation

An unsupported data type was used in the CORBA application call.

System Action

An exception is posted to the application

User Action

Review the IDL file and application, and make sure that an unsupported data type is not used.

IOP00710284: (INTERNAL) Exception when sending close connection

Explanation

The connection was closed, therefore the attempt to send the data failed.

System Action

An exception is posted to the application

User Action

The line may have been closed while the data was being sent. Check the message that was output at the same time, and the message that was notified to the communication destination, to remove the cause of the exception.

IOP00710285: (INTERNAL) A reflective tie got an error while invoking method {0} on class {1}

Variable Information

{0}: Method name

{1}: Class name

Explanation

An error occurred during processing of method {0} of class {1}.

System Action

An exception is posted to the application

User Action

Check whether the remote interfaces used in the client application and server application match.

13.23.10 IOP00710300 to IOP00710399

IOP00710311: (INTERNAL) Worker thread {0} caught throwable {1} while executing work.

Variable Information

{0}: Thread information

{1}: Exception information

Explanation

Worker thread {0} caught exception {1}.

System Action

An exception is posted to the application.

User Action

Follow the action advised in the exception posted to the application.

IOP00710312: (INTERNAL) Worker thread Thread {0} caught unexpected throwable.

Variable Information

{0}: Thread information

Explanation

Worker thread {0} caught an exception.

System Action

Processing is interrupted.

User Action

Take action according to the exception output at the same time.

IOP00710317: (INTERNAL) Ignoring parsed fragment message because there is no fragment queue found for request id {0}.

Variable Information

{0}: Request ID

Explanation

The received split message is discarded because there is no message corresponding to the request ID.

System Action

The received split message is discarded. The connection is maintained.

User Action

If the IIOP communication load balancing feature was used for linkage with IPCOM, check that the non-fragment mode was set.

13.23.11 IOP00810200 to IOP00810299

IOP00810202: (MARSHAL) Grow buffer strategy called underflow handler

Explanation

The message could not be received correctly.

System Action

An exception is posted to the application.

User Action

Resend the request on the client-side.

If IOP00410225 or IOP00410229 is notified to the server or client at the same time as this message is received, then it means that a data inconsistency has occurred due to a send/receive failure. In this case, this can be fixed by addressing those messages. For details, refer to "IOP00410225" and "IOP00410229".

IOP00810211: (MARSHAL) Exception from readValue on ValueHandler in CDRInputStream

Explanation

An exception was detected during data reception.

System Action

If issued at the server side, the request is not processed.

User Action

- The circuit might have been disconnected during data reception. Take the following action:
 - Check whether there is a network environment error.
 - Check whether the [com.sun.corba.ee.transport.ORBTCPTimeouts](#) property at the connection destination issued a timeout.

- Check whether the connection destination failed during data transmission.
- If the IIOP communication load balancing feature was used for linkage with IPCOM, check that the non-fragment mode was set.
- If "java.io.IOException: Mismatched serialization UIDs :'" is included in the stack trace, there is an incompatibility in the reception data.

The transmission data class version numbers displayed afterwards must be the same for the send side and the reception side.

Take the following action:

- Check whether the implemented content of the transmission data class differs between the client application and the server application. The implemented content of the class is reflected in the version numbers.
- If the version number is set in the serialVersionUID variable within the transmission data class, check whether this value differs between the client application and the server application.

IOP00810214: (MARSHAL) Bad repository ID indirection at index {0}

Variable Information

{0}: Index information

Explanation

An error occurred during parsing of the received data.

System Action

An exception is posted to the application

User Action

If the IIOP communication load balancing feature was used for linkage with IPCOM, check that the non-fragment mode was set.

IOP00810222: (MARSHAL) Received end tag {0}, which is less than the expected value {1}

Variable Information

{0}: Actual value

{1}: Expected value

Explanation

An error occurred during parsing of the received data.

System Action

An exception is posted to the application

User Action

If the IIOP communication load balancing feature was used for linkage with IPCOM, check that the non-fragment mode was set.

IOP00810240: (MARSHAL) Cannot marshal an invalid TypeCode kind

Explanation

The message could not be received correctly.

System Action

An exception is posted to the application.

User Action

Resend the request on the client-side.

If IOP00410225 or IOP00410229 is notified to the server or client at the same time as this message is received, then it means that a data inconsistency has occurred due to a send/receive failure. In this case, this can be fixed by addressing those messages. For details, refer to "IOP00410225" and "IOP00410229".

IOP00810249: (MARSHAL) Could not skip over {0} bytes at offset {1}

Variable Information

{0}: Number of bytes
{1}: Offset value

Explanation

An error occurred during parsing of the received data.

System Action

An exception is posted to the application

User Action

If the IOP communication load balancing feature was used for linkage with IPCOM, check that the non-fragment mode was set.

IOP00810257: (MARSHAL) Could not load class {0}

Variable Information

{0}: Class name

Explanation

The class was not found.

System Action

An exception is posted to the application.

User Action

Check whether the class output as the class name {0} exists.

Also, check whether the serialVersionUID of the class output as the class name {0} is the same at the client and the server.

IOP00810261: (MARSHAL) Could not read exception from UEInfoServiceContext

Explanation

Unmarshal processing failed for the exception class.

System Action

An exception is posted to the application.

User Action

Follow the action advised in the message output prior to this message and with a message number starting with IOP.

13.23.12 IOP01000000 to IOP01000099

IOP01000001: (NO_IMPLEMENT) Missing local value implementation

Explanation

Cannot find a server implementation.

System Action

An exception is posted to the application.

User Action

Identify the cause from the exception information that is output for 'Caused by:' after the stack trace, then take action. If IOP00410225 or IOP00410229 is notified to the server or client at the same time as this message is received, it means that a data inconsistency has occurred because of a send/receive failure. In this case, output of this message can be prevented by removing the cause of the IOP00410225 or IOP00410229 messages.

13.23.13 IOP01210200 to IOP01210299

IOP01210246: (BAD_OPERATION) Bad operation from _invoke: {0}

Variable Information

{0}: Name of the remote interface method for which calling failed

Explanation

A remote interface method that is not implemented by the server application was called.

System Action

An exception is posted to the application.

User Action

Check whether the client application and the server application use the same remote interface.

IOP01210259: (BAD_OPERATION) Exception in ConvertAction operation

Explanation

An exception occurred in property parsing.

System Action

An exception is posted to the application.

User Action

Refer to the message output immediately before this one and take action.

13.23.14 IOP01211200 to IOP01211299

IOP01211204: (BAD_OPERATION) Object adapter ID not available

Explanation

The Object adapter ID cannot be used.

System Action

An exception is posted to the application.

User Action

The server application might have been called using an illegal object.

Revise how the object used to call the server application was obtained:

- From the Java EE application
- When the IIServer cluster started or restarted
- When the instance started or restarted

13.23.15 IOP01211400 to IOP01211499

IOP01211405: (BAD_OPERATION) Exception in loadStub

Explanation

Failed to call the stub which implements the remote interface in RMI-IIOP.

System Action

An exception is posted to the application

User Action

This message is output when Security Manager has been activated in the application client container. Security Manager is not supported in the application client container, therefore Security Manager should not be activated.

Additionally, this message may be output if the remote interface and the classes that use the remote interface are not loaded by the same class loader. Include the remote interface and the classes that use the remote interface in the same module.

13.23.16 IOP01310200 to IOP01310299

IOP01310202: (NO_RESOURCES) There is a possibility for the number of threads under work to reach the number of maximum threads. id:{0} working:{1} maximum:{2}

Variable Information

{0}: Thread pool ID

{1}: Number of working threads

{2}: Maximum number of threads

Explanation

The number of working threads might have reached the maximum number.

System Action

Processing is continued.

User Action

Make sure that the maximum number of pool threads specified for the number of clients simultaneously connected is sufficient. Increase the value if necessary.

13.23.17 IOP01700000 to IOP01700099

IOP01700004: (TRANSIENT) POA destroyed

Explanation

The POA was discarded.

System Action

Processing is continued.

User Action

If this message is output when the IJServer cluster is started, no action is required.

Otherwise, call the server application again.

13.23.18 IOP01710200 to IOP01710299

IOP01710201: (TRANSIENT) Request cancelled by exception

Explanation

A cancel request message was received.

System Action

The received request is cancelled.

User Action

Follow the action advised in the message output at the client side.

13.23.19 IOP02310200 to IOP02310299

IOP02310202: (OBJ_ADAPTER) Error in connecting servant to ORB

Explanation

The setting of an association between the servant object and ORB failed.

System Action

An exception is posted to the application.

User Action

The network address(machine name or IP address) and port number specified in the IIOp listener might not have been usable. Check the IIOp listener settings and check whether the IIOp listener has been used by other applications.

If the IIOp listener settings are correct, refer to the stack trace and the exception information that is output as "Caused by:" to identify the cause of the error and fix the problem.



- For the network address, specify either an IP address or a host name that can be resolved by DNS.
- If the IIOp communication load balancing function linked to IPCOM is used, the virtual host name must be specified as the network address. For details on how to set the IIOp listener network address, refer to "Load Balancing Using IPCOM".
- Tune the port number.
- If a value other than the system property \${IIOp_LISTENER_PORT} is specified for the IIOp listener post in an IJServer cluster, specify the system property \${IIOp_LISTENER_PORT}.

13.23.20 IOP02311000 to IOP02311099

IOP02311024: (OBJ_ADAPTER) ReferenceFactoryManager is not active

Explanation

CORBA information could not be initialized because the application is not in the active state.

System Action

Processing is continued.

User Action

If this message is output when the IJServer cluster starts up, there is no need to take action. If this message is output while the IJServer cluster is running, dispatch using the load balancer feature may not have been executed correctly. Restart the IJServer cluster.

IOP02311029: (OBJ_ADAPTER) ReferenceFactoryManager createReference failed

Explanation

A started event was received from another instance before the application was activated.

System Action

Processing is continued.

User Action

If this message is output when the IJServer cluster starts up, then there is no need to take action, otherwise restart the IJServer cluster.

13.23.21 IOP02400000 to IOP02400099

IOP02400001: (DATA_CONVERSION) Character does not map to negotiated transmission code set

Explanation

Code conversion failed.

System Action

An exception is posted to the application.

User Action

Review the strings used by the application.

13.23.22 IOP02410200 to IOP02410299

IOP02410206: (DATA_CONVERSION) Invalid unicode pair detected during code set conversion

Explanation

Code conversion failed. There is a string for which code conversion is not possible.

System Action

An exception is posted to the application

User Action

If the IIOP communication load balancing feature was used for linkage with IPCOM, check that the non-fragment mode was set.

IOP02410208: (DATA_CONVERSION) Client sent code set service context that we do not support

Explanation

The code type specified for the connection destination CORBA application is not supported.

System Action

An exception is posted to the application

User Action

Review the code type specified for the connection destination CORBA application, and specify a supported code type.

IOP02410210: (DATA_CONVERSION) Character to byte conversion did not exactly double number of chars (GIOP 1.1 only)**Explanation**

The system property "com.sun.corba.ee.encoding.ORBCodeConversionUseUnitOfIOR" which is required for the CORBA application call was not specified.

System Action

An exception will be notified to the application

User Action

Specify "com.sun.corba.ee.encoding.ORBCodeConversionUseUnitOfIOR=true" for the system property.

IOP02410214: (DATA_CONVERSION) com.sun.enterprise.iop.IOPSSLSocketFactory is not a valid custom socket factory**Explanation**

IOP communication failed because the SSL settings were not enabled.

System Action

An exception is posted to the application.

User Action

Revise the SSL settings.

13.23.23 IOP5000 to IOP5099

IOP5001: Exception creating security tagged component {0}**Variable Information**

{0}: Exception information

Explanation

The TaggedComponent associated with OTS is invalid.

System Action

An exception is posted to the application.

User Action

Follow the action advised in the exception information at {0}.

IOP5002: Exception occurred in init of IOPSSLSocketFactory**Explanation**

SSL environment initialization failed.

System Action

An exception is posted to the application.

User Action

Revise the SSL settings.

IOP5011: Exception getting the servant: {0} {1}

Variable Information

{0}: Thread information
{1}: Exception information

Explanation

The Enterprise JavaBean search of the request reception destination failed.

System Action

An exception is posted to the application.

User Action

Execute the processing again starting from the create method, if using EJB 2.1, or from the lookup method if using EJB 3 or later. Also, revise the settings for the non-communication monitoring function of the Stateful Session Bean.

If the IIOP communication load balancing function linked to IPCOM is used, check whether a Stateful Session Bean is used.



If the IIOP communication load balancing function linked to IPCOM is used, a Stateful Session Bean cannot be used.

IOP5023: Exception getting username and password

Explanation

Failed to get the user name and password.

System Action

An exception is posted to the application.

User Action

Make sure that the user name and password are correct.

Solaris32/64 **Linux32/64**

If the user name and password are correct, set the VMARGS environment variable as follows:

```
# export VMARGS=-Dstartup.login=true
```

IOP5041: Principal propagation: Cannot find principal information in subject

Explanation

Cannot find the authentication information (Principal) which is transmitted to the EJB container.

System Action

Processing continues.

User Action

Check whether the authentication information transmitted to the EJB container is correct. Note that this message may be output when EJB is called from the Web service, however there will be no impact on operations.

IOP5049: Login exception: [{0}]

Variable Information

{0}: Exception information

Explanation

Login failed.

System Action

An exception is posted to the application.

User Action

Check whether the user name and password used for IIOP client authentication are correct.

IOP5079: Alias name {0} does not identify a key entry.

Variable Information

{0}: Site certificate nickname

Explanation

The site certificate nickname does not exist in the key store.

System Action

An exception is posted to the application.

User Action

- If the failure occurred during IJServer cluster startup, check whether the site certificate nickname for the IIOP listener is correct.
- If the client application failed, check whether the client certificate nickname is correct.

13.24 Messages that Contain "ISCOMMON" in the Message ID

13.24.1 ISCOMMON0000 to ISCOMMON0099

INFO: ISJEE_ISCOMMON0001: Please refer to the following message: {0}

Variable Information

{0}: information

Explanation

This is an INFO message that shows that internal processing was executed correctly.

System Action

Processing is continued.

User Action

Take the following action:

- If a message number is contained in the variable information, refer to the explanation for the message number.
- If exception information is contained in the variable information, refer to the explanation for the exception information.

In all other cases, there is no need to take action.

WARNING: ISJEE_ISCOMMON0002: Please refer to the following message: {0}

Variable Information

{0}: information

Explanation

The internal processing shown in the variable information is performed.

System Action

Processing is continued.

User Action

Take the following action:

- If a message number is contained in the variable information, refer to the explanation for the message number.
- If exception information is contained in the variable information, refer to the explanation for the exception information.
- If the string "LoggerName=ShoalLogger" is contained in the variable information, it means that this message is a group management service message.
If Enterprise JavaBeans is not to be used, or load balancing using the group management service is not to be performed, set 'false' for the heartbeat. For details on the heartbeat, refer to "[2.22 Group Management Service](#)".

In all other cases, there is no need to take action.

ERROR: ISJEE_ISCOMMON0003: Please refer to the following message: {0}

Variable Information

{0}: information

Explanation

The unexpected error shown in the variable information occurred in internal processing.

System Action

Processing is continued.

User Action

Take the following action:

- If a message number is contained in the variable information, refer to the explanation for the message number.
- If exception information is contained in the variable information, refer to the explanation for the exception information.
- If a message containing a number is output before or after this one, then refer to its explanation.
- If this message was output while the asadmin command was being executed, there is a possibility that other operations were executed by the asadmin command at the same time. Wait for a while and then reexecute the command.
- If {0} contains the text below, then check the owner/group and access privileges for the corresponding directory or file.
 - No write permission: Directory or file information

If the owner is a service operator user and has write privileges, then its name might not follow the operating system guidelines.

Example: A user name in which only digits are used.

Follow the operating system guidelines in using a user name for the service operator user.

- In all other cases, identify the cause from the variable information contents and then take action.

If action cannot be taken, contact a Systems Engineer.

13.25 Messages that Contain "JACCPVD" in the Message ID

13.25.1 JACCPVD00000 to JACCPVD00099

INFO: ISJEE_JACCPVD00001: JACC Policy Provider: PolicyWrapper.implies, context({0})-permission({1}) domain that failed({2})

Variable Information

{0}: context

{1}: permission

{2}: domain

Explanation

There is no access permission.

System Action

Processing is interrupted.

User Action

Check whether the access permission is correct.

13.25.2 JACCPVD10000 to JACCPVD10099

ERROR: ISJEE_JACCPVD10001: commit failed for policy context [{0}] caught {1}.

Variable Information

{0}: Context

{1}: Detail information

Explanation

Commit failed for the Security Policy.

System Action

Processing is interrupted.

User Action

Follow the action advised in the detail information {1} and remove the cause of the error.

ERROR: ISJEE_JACCPVD10003: Unable to close policy file [{0}] caught {1}.

Variable Information

{0}: Policy file name

{1}: Detail information

Explanation

An error occurred while closing the policy file.

System Action

Processing is interrupted.

User Action

Follow the action advised in the detail information {1} and remove the cause of the error.

ERROR: ISJEE_JACCPVD10004: Unable to delete policy file [{0}].

Variable Information

{0}: Policy file name

Explanation

Policy file deletion processing failed.

System Action

Processing is continued.

User Action

If the file shown as the policy file name {0} exists, delete the file manually.

ERROR: ISJEE_JACCPVD10005: Unable to create policy file [{0}] caught {1}.

Variable Information

{0}: Policy file name
{1}: Detail information

Explanation

Policy file creation failed.

System Action

Processing is interrupted.

User Action

Follow the action advised in the detail information {1} and remove the cause of the error.

ERROR: ISJEE_JACCPVD10006: Unable to find policy file [{0}].

Variable Information

{0}: Policy file name

Explanation

The policy file does not exist.

System Action

Refer to the message that was also output.

User Action

Refer to the message that was also output and fix the error.

ERROR: ISJEE_JACCPVD10009: Error writing to policy file [{0}] caught {1}.

Variable Information

{0}: Policy file name
{1}: Detail information

Explanation

Policy file read processing failed.

System Action

Processing is interrupted.

User Action

Follow the action advised in the detail information {1} and remove the cause of the error.

WARNING: ISJEE_JACCPVD10018: No Principals mapped to Role [{0}].

Variable Information

{0}: Roll

Explanation

The role {0} mapping is incorrect.

System Action

Processing is continued.

Authentication / permission fails.

User Action

Revise the mapping settings.

If this message was output during redeployment processing, perform redeployment again. For the restrictions that apply to redeployment, refer to "Restrictions on IIServer cluster".

ERROR: ISJEE_JACCPVD10023: Unable to directory for policy context: [{0}]

Variable Information

{0}: Path name

Explanation

Creation of the directory for the policy file failed.

System Action

Processing is interrupted.

User Action

Delete the path shown as the path name {1} and then perform the processing again.

ERROR: ISJEE_JACCPVD10025: Unable to initialize policy file repository. caught {0}

Variable Information

{0}: Detail information

Explanation

Policy file repository initialization failed.

System Action

Refer to the message that was also output.

User Action

Follow the action advised in the detail information {0} and remove the cause of the error.

ERROR: ISJEE_JACCPVD10026: Unable to read policy file repository in {0}.

Variable Information

{0}: Policy file storage destination directory

Explanation

Policy file read processing failed.

System Action

Processing is interrupted.

User Action

Check whether there is a problem with the path shown as the directory name {0}.

13.26 Messages that Contain "JAXWS" in the Message ID

13.26.1 JAXWS0000 to JAXWS0099

JAXWS0004: Unknown WS-Addressing header

Explanation

The WS-Addressing header cannot be analyzed.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Check whether the request send destination is correct.
- Contact the Web service provider to check whether a problem has occurred at the send destination.
- Check the application and, if the API parameters being used or the method of use are incorrect, correct the application.

JAXWS0041: HTTP transport error: {0}

Variable Information

{0}: Exception information

Explanation

An HTTP transport error occurred.

Cause

Possible causes are as follows:

- If "doesn't have the corresponding URL" is included in the exception information {0}

The correct URL cannot be generated from the value specified in `BindingProvider.ENDPOINT_ADDRESS_PROPERTY` in the client application.

System Action

Processing is interrupted.

User Action

Take the following actions:

- If "doesn't have the corresponding URL" is included in the exception information {0}

Revise the `BindingProvider.ENDPOINT_ADDRESS_PROPERTY` value in the client application.

- If content other than the above is output in the exception information {0}

At the client side, follow the action advised in the exception information {0} and remove the cause of the error.

JAXWS0044: request requires HTTP authentication: {0}

Variable Information

{0}: Error information returned from the server

Explanation

Authentication failed.

System Action

Processing is interrupted.

User Action

Set the correct authentication information in the application and then execute the request again.

JAXWS0045: HTTP Status-Code 404: Not Found - {0}

Variable Information

{0}: Error information returned from the server

Explanation

The request URL could not be found.

Cause

Possible causes are as follows:

- The URL being accessed is incorrect.
- The URL of the access destination Web service has been changed.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Set the correct URL in the application and then execute the request again.
- Specify the public WSDL of a Web service for which the destination has changed, execute the `ijwsimport` command again, and create a corrected Web service stub.

JAXWS0046: The server sent HTTP status code {0}: {1}

Variable Information

{0}: HTTP status code

{1}: Error information returned from the server

Explanation

The server returned an error.

System Action

Processing is interrupted.

User Action

Check the meaning of the HTTP status code that is output in the variable information and check the error information returned from the server. Remove the cause of the error, then execute again.

JAXWS0047: {0} is not a valid port. Valid ports are: {1}

Variable Information

{0}: Value specified for the first argument of the `createDispatch()` or `getPort()` method in the `javax.xml.ws.Service` class

{1}: List of port QNames that exist in the WSDL file

Explanation

The port name {0} is incorrect.

System Action

Processing is interrupted.

User Action

Revise the value specified for the variable information {0} and specify a port QName that exists in the WSDL.

JAXWS0049: "{0}" is not a valid service. Valid services are: "{1}"

Variable Information

{0}: Value specified for the second argument of the <service-qname> element in the deployment descriptor or the create(java.net.URL,javax.xml.namespace.QName) method for the javax.xml.ws.Service class

{1}: List of service QNames that exist in the WSDL file

Explanation

The service name is incorrect.

System Action

Processing is interrupted.

User Action

Revise the value specified for the element or method that corresponds to the variable information {0} and specify a service QName that exists in the WSDL.

JAXWS0050: null is not a valid service

Explanation

There is no service name.

System Action

Processing is interrupted.

User Action

Possible causes are as follows:

- If there is a <wsdl-file> tag under the <service-ref> tag within webservicess.xml, web.xml, application-client.xml, or ejb-jar.xml, there is no <service-qname> element under the same <service-ref> tag.
- Null was passed as the argument when calling the API of the JAX-WS that takes the service QName as an argument.

Correct the application to remove the error, then execute again.

JAXWS0055: Invalid WSDL {0}, expected {http://schemas.xmlsoap.org/wsdl/}definitions found {1} at (line{2})

Variable Information

{0}: WSDL to which access was attempted

{1}: QName in the root element of the parsed XML

{2}: XML processor cursor position

Explanation

The WSDL shown in the variable information {0} is an invalid WSDL or might not be a WSDL.

System Action

Processing is interrupted.

User Action

Check whether the WSDL shown in the variable information {0} is correct.

JAXWS0056: Undefined binding: {0}

Variable Information

{0}: binding QName

Explanation

Binding is undefined for WSDL in {0}.

User Action

- Check whether the specified WSDL is the intended one.
- Define binding for WSDL in {0}.

JAXWS0057: Undefined port type: {0}

Variable Information

{0}: portType QName

Explanation

portType is undefined for WSDL in {0}.

User Action

- Check whether the specified WSDL is the intended one.
- Define portType for WSDL in {0}.

JAXWS0066: Failed to access the WSDL at: {0}. It failed with: {1}.

Variable Information

{0}: URL to the WSDL to which access was attempted

{1}: Detail information

Explanation

The WSDL could not be accessed.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Check whether the WSDL is provided correctly by the URL shown in the variable information {0}. Revise the URL or the environment of the WSDL provision source and then execute again.
- Revise the network configuration so that it enables access to the URL shown in the variable information {0} and then execute again.
- If {0} is a local file, then review the file or directory access privileges, and reexecute.

If SSL is being used, the main possible causes are as follows:

- A key store is not set.
- The key store cannot be accessed.
- A required certificate is not registered in the certificate environment.
- The server site certificate content does not match the specified URL.
- Certificate content is missing.

If SSL client authentication is performed, the main possible causes are as follows:

- The client certificate is not sent to the server.
- A client certificate that cannot be analyzed might have been sent to the server.

Follow the action advised in the detail information { 1 } and remove the cause of the error, then execute again.

JAXWS0067: WSDL {0} contains no service definition.

Variable Information

{0}: WSDL file location

Explanation

The service element is undefined for WSDL in {0}.

User Action

- Check whether the specified WSDL is the intended one.
- Define the service element for WSDL in {0}.

JAXWS0070: The value for the parameter "com.sun.xml.ws.transport.http.client.streaming.chunk.size" must be an Integer object.

Explanation

An integer object must be set for the com.sun.xml.ws.transport.http.client.streaming.chunk.size value.

System Action

Processing is interrupted.

User Action

Set an integer object for the com.sun.xml.ws.transport.http.client.streaming.chunk.size value.

JAXWS0080: SOAP/HTTP Binding in {0} is not allowed with a null invocation argument. Must be: {1}

Variable Information

{0}: "MESSAGE"
{1}: "PAYLOAD"

Explanation

A null value was specified in the Service.Mode.Message mode in javax.xml.ws.Dispatch.

User Action

- If the null value must be specified, change to the Service.Mode.PAYLOAD mode.
- If there is no need for the null value to be specified, review the program.

JAXWS0082: No response returned.

Explanation

A response cannot be obtained.

Possible causes are as follows:

- A method that declared the @javax.jws.Oneway annotation was called by the invoke() method of the javax.xml.ws.Dispatch<T>interface.
- The response cannot be obtained because the Web service results were returned to the URI of the non-pseudonym specified in <ReplyTo> or <FaultTo> in the WS-Addressing header.

System Action

Processing is interrupted.

User Action

Take the following actions:

- For a method that declared the `@javax.jws.Oneway` annotation, call using the `invokeOneWay()` method of the `javax.xml.ws.Dispatch<T>` interface.
- For a request in which the URI of a non-pseudonym is specified in `<ReplyTo>` or `<FaultTo>` in the WS-Addressing header, call using the `invokeOneWay()` method of the `javax.xml.ws.Dispatch<T>` interface.

JAXWS0086: Can not create Dispatch<DataSource> with {0}. Must be: {1}

Variable Information

{0}: "SOAP/HTTP"
{1}: "http://www.w3.org/2004/08/wsdl/http"

Explanation

Failed to create `javax.xml.ws.Dispatch<javax.activation.DataSource>`.

User Action

- Create `javax.xml.ws.Dispatch` using a class other than `javax.activation.DataSource`, such as `javax.xml.transformSource`.
- To create `javax.xml.ws.Dispatch<javax.activation.DataSource>`, use XML/HTTP binding and change the mode to `Service.Mode.MESSAGE`.

JAXWS0095: WSDLPort {0} already exists. Can not create a port of the same QName.

Variable Information

{0}: Value specified in the first argument of the `addPort(javax.xml.namespace.QName portName, String bindingId, String endpointAddress)` method of the `javax.xml.ws.Service` class

Explanation

Variable information {0} is already defined in the WSDL. A port with the same QName cannot be created.

System Action

Processing is interrupted.

User Action

Revise the value specified for the method and specify a QName that differs from the ports existing in the WSDL.

13.26.2 JAXWS0100 to JAXWS0199

JAXWS0180: runtime modeler error: {0}

Variable Information

{0}: Error information

Explanation

An exception occurred as a result of the error shown in the variable information {0}.

System Action

Processing is interrupted.

User Action

Remove the error shown in the variable information {0} and then execute again.

JAXWS0181: A WebService annotation is not present on class: {0}

Variable Information

{0}: Endpoint interface

Explanation

Failed to reference the endpoint interface class.

User Action

- Make sure that the class setting in {0} was correctly executed according to the specified classpath.
- Review the content of the application-client.xml <service-ref-type> tag, then reexecute.

JAXWS0185: method: {0} could not be found on class: {1}

Variable Information

{0}: Method name defined in the service endpoint interface

{1}: Service endpoint interface implementation class name

Explanation

The method defined in the service endpoint interface was not implemented in the implementation class.

System Action

Processing is interrupted.

User Action

In the endpoint implementation class of the service endpoint interface, check that all the defined methods have been implemented then reexecute the operation.

JAXWS0191: A @WebService.targetNamespace must be specified on classes with no package. Class: {0}

Variable Information

{0}: Implementation class name

Explanation

The targetNamespace element of the @WebService annotation must be specified for classes that have no package declaration.

System Action

Processing is interrupted.

User Action

If a class or interface has no package declaration, ensure that the targetNamespace element is specified in the @WebService annotation.

JAXWS0192: The web service defined by the class {0} does not contain any valid WebMethods.

Variable Information

{0}: Class name

Explanation

A method that can be used as a Web service operation is not declared for class {0}.

System Action

Processing is interrupted.

User Action

Add a public method as the Web service operation.

JAXWS0198: Unable to create JAXBContext.**{0}****Variable Information**

{0}: Detail information

Explanation

Conversion from the class to XML failed.

System Action

Processing is interrupted.

User Action

Conversion processing using JAXB from a Java class to an XML schema failed. Follow the action advised in the detailed information and remove the cause of the error, then execute again.

Additionally, refer to "[3.1.4 Data Types that can be Used in Web Service Communication](#)" and check whether this is mentioned in "Notes".

JAXWS0199: SEI {0} has method {1} annotated as BARE but it has more than one parameter bound to body. This is invalid. Please annotate the method with annotation:**@SOAPBinding(parameterStyle=SOAPBinding.ParameterStyle.WRAPPED)****Variable Information**

{0}: Service endpoint interface name

{1}: Method name

Explanation

The variable information {1} method defined as the BARE of the service endpoint interface shown in variable information {0} has more than one parameter. Specify `javax.jws.soap.SOAPBinding.ParameterStyle.WRAPPED` in the `parameterStyle` attribute of the `@javax.jws.soap.SOAPBinding` annotation.

System Action

Processing is interrupted.

User Action

Take the following actions:

- If the method shown in variable information {1} must be defined as a BARE, revise the parameters.
- Revise the value of the `parameterStyle` attribute of the `@javax.jws.soap.SOAPBinding` annotation.

13.26.3 JAXWS0200 to JAXWS0299

JAXWS0220: Address in an EPR cannot be null**Explanation**

A value is not set for the EPR Address.

System Action

Processing is interrupted.

User Action

Set a value for the EPR address and then execute again.

JAXWS0221: Address in an EPR cannot be null, when serviceName or portName is null

Explanation

If serviceName or portName is null, null cannot be specified for the EPR address.

System Action

Processing is interrupted.

User Action

If null is specified for the EPR address, do not specify null for serviceName or portName.

JAXWS0222: serviceName can't be null when portName is specified

Explanation

If portName is specified, null cannot be specified for serviceName.

System Action

Processing is interrupted.

User Action

If a value is specified for the EPR portName, do not specify null for serviceName.

JAXWS0225: Service: {0} not found in WSDL: {1}

Variable Information

{0}: endpointName value of EPR

{1}: URL of WSDL

Explanation

Service {0} cannot be found in the WSDL file {1}.

System Action

Processing is interrupted.

User Action

Revise the value specified for the EPR endpointName.

JAXWS0226: Port: {0} not a valid port in Service: {1} in WSDL: {2}

Variable Information

{0}: portName value of EPR

{1}: endpointName value of EPR

{2}: URL of WSDL

Explanation

Port {0} of service {1} is not a valid port for the WSDL file {2}.

System Action

Processing is interrupted.

User Action

Revise the value specified for the EPR portName.

JAXWS0227: Error in parsing WSDL: {0}

Variable Information

{0}: URL of WSDL

Explanation

An error occurred in analyzing the WSDL file {0} during EPR generation.

System Action

Processing is interrupted.

User Action

Follow the action advised in the exception information that is output immediately after this message and then execute again.

JAXWS0229: WSDL Metadata not available to create the proxy, either Service instance or ServiceEndpointInterface {0} should have WSDL information

Variable Information

{0}: Service endpoint interface name

Explanation

The WSDL definition information cannot be used to generate a proxy. WSDL information is required in the service instance or the service endpoint interface.

System Action

Processing is interrupted.

User Action

Specify the WSDL if you want to generate a service instance.

JAXWS0261: Server Runtime Error: {0}

Variable Information

{0}: Error information

Explanation

An exception occurred due to the error cause at {0}.

User Action

Remove the error shown at {0} and then execute again.

JAXWS0278: Port namespace {0} doesn't match Service namespace {1}

Variable Information

{0}: port name namespace

{1}: service name namespace

Explanation

The port namespace is different from service namespace.

User Action

Review namespace for the <wsdl-service> and <wsdl-port> elements in webservices.xml.

13.26.4 JAXWS0300 to JAXWS0399

JAXWS0301: could not get binding from WSDL! service: {0} or port {1} not found in the WSDL {2}.

Variable Information

- {0}: The serviceName member value of the WebService annotation or the webservice.xml <wsdl-service> element name
- {1}: The portName member value of the WebService annotation or the webservice.xml <wsdl-port> element name
- {2}: WSDL file path or URL

Explanation

- There is an inconsistency between the webservises.xml definition content and the WSDL file definition content.
- There is an inconsistency between the member value specified in the WebService annotation and the definition content of the WSDL file.

User Action

The information below is output at the same time as this message. Remove the error cause as shown below and then execute again.

```
It could be because service and port names do not match WSDL's wsdl:service and wsdl:port names:
1. service and port names are not there in deployment descriptor OR
2. Either there is a typo in deployment descriptor's service and port names OR
3. The computed names from @WebService do not match wsdl:service and wsdl:port names
Suggest doing the following:
1. Add/Correct entries for service and port names in deployment descriptor OR
2. Specify targetNamespace, serviceName, portName in @WebService on the endpoint class
```

JAXWS0310: Cannot find dispatch method for {0}

Variable Information

- {0}: SOAP envelope element name

Explanation

The Web service application method corresponding to the element name {0} in the SOAP envelope could not be found. If there is no applicable SOAP envelope element name, {} is output.

User Action

If required, follow the action advised in the content output in the variable information. Also, check whether the Web service client is using the correct WSDL file and the Web service is sending incompatible messages.

JAXWS0311: Non unique body parts! In a port, as per BP 1.1 R2710 operations must have unique operation signature on the wire for successful dispatch. Methods {0} have the same request body block {1}. Method dispatching may fail, runtime will try to dispatch using SOAPAction.

Variable Information

- {0}: Endpoint method name or name attribute value of the wsdl:operation element
- {1}: Child element QName of the SOAP soap:Body element

Explanation

This does not conform to WS-I Basic Profile 1.1 R2710.

The communication message content definition might be duplicated by another operation.

System Action

Processing is continued.

User Action

If the Web service was developed from an application, take the following actions:

- Specify different values for the operationName attribute in the javax.jws.WebMethod annotation in different operations.
- Check whether the endpoint method name is duplicated.

If the Web service was developed on the basis of an already created WSDL set, take the following actions:

- Check whether more than one WSDL file wsdl:operation element references the same wsdl:message or xs:element element.
- Ensure the WSDL file conforms to WS-I Basic Profile 1.1 R2710.

JAXWS0312: Unsupported Content-Type: {0} Supported ones are: {1}

Variable Information

{0}: MIME type of the received message
{1}: Supported MIME types

Explanation

An unsupported MIME type was detected.

System Action

Processing is interrupted.

User Action

Take the following actions:

- If this message was output when the Web service application was executed:
 - Check whether the WSDL supplied to the Web service user is correct.
 - Ask the Web service user whether the connection destination URL is correct.
 - Ask the Web service user whether a SOAP message conforming to WSDL is being sent.
- If this message was output when the Web service client application was executed:
 - Check whether the application being developed uses a WSDL provided by the connection destination Web service.
 - Check the connection destination URL and, if there is an error, correct it.
 - Check the application and, if the API parameters being used or the method of use are incorrect, correct the application.
 - Check whether an error or problem has occurred at the Web service side.
 - Ask the Web service provider whether a SOAP message conforming to WSDL is being sent.

JAXWS0330: Couldn't create SOAP message due to exception:

Explanation

Reception processing failed because an exception was issued.

System Action

Processing is interrupted.

User Action

Follow the action advised in the message that is output immediately after this message.

JAXWS0335: Couldn't create SOAP message. Expecting Envelope in namespace {0}, but got {1}

Variable Information

{0}: Expect namespace
{1}: Detected namespace

Explanation

The SOAP message namespace is incorrect.

User Action

- If this occurs in the sender, change it to the namespace shown in the variable information.

- If this occurs in the receiver, tell the sender to change it to the namespace shown in the variable information.

JAXWS0354: XML reader error: {0}

Variable Information

{0}: Exception detail information

Explanation

XML analysis processing failed.

User Action

Take the following action:

- If {0} is a WSDL URI, then check that the WSDL was provided correctly, review the WSDL provider environment, then reexecute.
- In all other cases, refer to {0} and take action if necessary.

JAXWS0362: unexpected XML tag. expected: {0} but found: {1}

Variable Information

{0}: XML tag name expected as the actual value

{1}: Name of XML tag used

Explanation

An unexpected XML tag was specified.

User Action

If required, follow the action advised in the content output in the variable information.

JAXWS0364:Unable to create StAX reader or writer

Explanation

Creation of the StAX `javax.xml.stream.XMLStreamReader` or `javax.xml.stream.XMLStreamWriter` failed.

Cause

Possible causes are as follows:

- A load might have been exerted on the Web service.
- Either the file does not exist, or the file or directory access privileges were not set correctly.

System Action

Processing is interrupted.

User Action

Take the following action:

- There might be a high Web service load. Check the load at the server where the Web service is deployed and, if there are continuous high loads, revise the server performance and number of machines.
- Refer to the stack trace that follows this message and take action.

13.26.5 JAXWS0600 to JAXWS0699

JAXWS0621: Ignoring: binding file "{0}". It is not a jaxws or a jaxb binding file.

Variable Information

{0}:File path or URL

Explanation

The specified file is ignored because it is not a JAX-WS or JAXB binding file or because it is incorrect.

System Action

Processing is continued.

User Action

Revise the option content specified in the ijwsimport command. Specify the correct JAX-WS or JAXB binding file in the -b option.

13.26.6 JAXWS0700 to JAXWS0799

JAXWS0750: modeler error

Explanation

Web service definition generation failed.

System Action

Processing is interrupted.

User Action

Follow the action advised in the message that is output after this message and in the stack trace.

JAXWS0762: binding operation "{0}" must specify a name for its input message

Variable Information

{0}: operation name of the wsdl:binding element

Explanation

The WSDL wsdl:binding element operation name {0} is duplicated.

The wsdl:input element name attribute that identifies the duplicated operation was not specified.

System Action

Processing is interrupted.

User Action

Follow the procedure below:

- Review so that the WSDL wsdl:binding element operation name {0} is not duplicated.
- To identify the duplicated operation, specify the same value as the wsdl:input element name attribute of the wsdl:portType element wsdl:operation element for the wsdl:input element name attribute of the WSDL wsdl:binding element operation name {0}.
- If possible, use the document/literal format instead of the rpc/literal format.

JAXWS0763: binding operation "{0}" must specify a name for its output message

Variable Information

{0}: operation name of the wsdl:binding element

Explanation

The WSDL wsdl:binding element operation name {0} is duplicated.

The wsdl:output element name attribute that identifies the duplicated operation was not specified.

System Action

Processing is interrupted.

User Action

Follow the procedure below:

- Review so that the WSDL wsdl:binding element operation name {0} is not duplicated.
- To identify the duplicated operation, specify the same value as the wsdl:output element name attribute of the wsdl:portType element wsdl:operation element for the wsdl:output element name attribute of the WSDL wsdl:binding element operation name {0}.
- If possible, use the document/literal format instead of the rpc/literal format.

[WARNING] JAXWS0784: Service "{0}" does not contain any usable ports.

Variable Information

{0}: name attribute value of the wsdl:service element

Explanation

The WSDL file wsdl:service element {0} does not include a usable wsdl:port element.

System Action

The wsdl:service element shown in the variable information {0} is ignored and processing is continued. In this case, the application cannot use the Web service associated with the ignored wsdl:service element information.

User Action

If it is essential to use the Web service application associated with the ignored wsdl:service element information shown in the variable information {0}, include the wsdl:port element in the WSDL file wsdl:service element. Alternatively, if a message was output prior to this message, follow the action advised in that message.

[WARNING] JAXWS0785: Port "{0}" does not contain any usable operations

Variable Information

{0}: name attribute value of the wsdl:port element

Explanation

The WSDL file wsdl:port element {0} does not include a usable wsdl:operation element.

System Action

The wsdl:port element shown in the variable information {0} is ignored and processing is continued. In this case, the application cannot use the Web service endpoint associated with the ignored wsdl:port element information.

User Action

If it is essential to use the Web service endpoint application associated with the wsdl:port element shown in the variable information {0}, include the wsdl:operation element in the wsdl:binding element referenced from the WSDL file wsdl:port element. Alternatively, if a message was output prior to this message, follow the action advised in that message.

[ERROR] JAXWS0798: Invalid wsdl:operation "{0}": its a document-literal operation, message part must refer to a schema element declaration

Variable Information

{0}: name attribute value of the wsdl:operation element

Explanation

The content of the wsdl:operation element {0} is invalid. If a document-literal operation is specified, the child element part of the message element must reference the element definition in the schema.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Revise the wsdl:part child element of the message element.
- Revise the style attribute of the soap:binding element.

13.26.7 JAXWS0800 to JAXWS0899

[ERROR] JAXWS0800: Invalid wsdl:operation "{0}": its a rpc-literal operation, message part must refer to a schema type declaration

Variable Information

{0}: name attribute value of the wsdl:operation element

Explanation

The content of the wsdl:operation element {0} is invalid. If an rpc-literal operation is specified, the child element part of the message element must reference the type definition in the schema.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Revise the style attribute of the soap:binding element.
- Revise the wsdl:part child element of the message element.

[WARNING] JAXWS0824: Ignoring operation "{0}": more than one part bound to body

Variable Information

{0}: name attribute value of the wsdl:operation element

Explanation

An item that has more than one wsdl:part element is in the wsdl:message element referenced from the WSDL file wsdl:operation element.

System Action

The wsdl:operation element shown in the variable information {0} is ignored and processing is continued. In this case, the application cannot use the method associated with the ignored wsdl:operation element information.

User Action

If the application must use the method associated with the wsdl:operation element information shown in the variable information {0}, do not include more than one wsdl:part element in the WSDL file wsdl:message element.

[ERROR] JAXWS0825: operation "{0}": more than one part bound to body

Variable Information

{0}: name attribute value of the wsdl:operation element

Explanation

An item that has more than one wsdl:part element is in the wsdl:message element referenced from the WSDL file wsdl:operation element.

System Action

Processing is interrupted.

User Action

Do not include more than one wsdl:part element in the WSDL file wsdl:message element.

JAXWS0835: ignoring fault "{0}" of operation "{1}", soap:fault name "{2}" is not unique

Variable Information

{0}: fault name defined in wsdl:operation
{1}: wsdl:operation name
{2}: soap:fault name

Explanation

This fault is ignored because the wsdl:message specification corresponding to the fault defined in wsdl:operation is duplicated.

System Action

Processing is continued.

User Action

This WSDL is invalid because the wsdl:message used by the fault in the message content is also used by another fault.

The Web service provider should ensure that the wsdl:message used by the fault in the message content is not the same as the wsdl:message used by another fault.

JAXWS0847: SOAP port "{0}": uses a non-standard SOAP 1.2 binding.

Variable Information

{0}: name attribute value of the wsdl:port element

Explanation

SOAP port {0} uses a non-standard SOAP 1.2 binding.

System Action

Processing is continued.

User Action

The use of SOAP1.1 is regulated by the terms for WSI-Basic Profile 1.1 and WSI-Basic Profile 1.0 (the standard for Web services).

From the perspective of compatible connectivity, the use of SOAP1.1 binding is recommended.

JAXWS0849: R2716 WSI-BasicProfile ver. 1.0, namespace attribute not allowed in doc/lit for {0}: "{1}"

Variable Information

{0}: Corresponding WSDL element name (the "soapbind" prefix represents the "http://schemas.xmlsoap.org/wsdl/soap/" namespace)
{1}: name attribute value of the ancestor attribute contained in this element

Explanation

In the document/literal format WSDL, the specifying of the namespace attribute in the {0} element is not recognized as a WS-I Basic Profile standard.

System Action

The corresponding namespace attribute is ignored and processing continues.

User Action

Review the WSDL and delete the corresponding element namespace attribute.

[ERROR] JAXWS0863: rpc/encoded wsdl's are not supported in JAXWS 2.0.

Explanation

JAX-WS2.0 does not support WSDL in the rpc/encoded format.

System Action

Processing is interrupted.

User Action

Use a WSDL file in either document/literal or rpc/literal format and execute again.

[ERROR] JAXWS0866: Invalid operation "{0}", can't generate java method. Parameter: part "{1}" in wsdl:message "{2}", is a java keyword. Use customization to change the parameter name or change the wsdl:part name.

Variable Information

{0}: name attribute value of the wsdl:operation element
{1}: name attribute value of the wsdl:part element
{2}: name attribute value of the wsdl:message element

Explanation

The wsdl:operation element {0} is invalid. The Java method cannot be generated because the name of the wsdl:part element {1} of the wsdl:message element {2} is a Java reserved word.

System Action

Processing is interrupted.

User Action

Take the following actions:

- If this message is output during Web service application development:
 - If editing the WSDL file directly, revise the file so that a Java reserved word is not used in the wsdl:part element {1} name.
 - If the @javax.jws.WebParam annotation or the @javax.jws.WebResult annotation is being used, revise the annotation so that a Java reserved word is not used in the name attribute.
- If this message is output during development of a client application that uses a Web service:
 - Use a JAX-WS or JAXB binding file specified in the -b option of the ijwsimport command to customize the Java reserved word name specified in the WSDL file wsdl:part element {1}.

[ERROR] JAXWS0868: Invalid operation "{0}", can't generate java method parameter. Local name of the wrapper child "{1}" in the global element "{2}" is a java keyword. Use customization to change the parameter name.

Variable Information

{0}: name attribute value of the wsdl:operation element
{1}: name attribute value of the schema "element" element
{2}: QName of the schema "element" element

Explanation

The wsdl:operation element {0} is invalid. The Java method corresponding to the wsdl:operation element {0} cannot be generated because the local name of the child element {1} wrapped by the global element {2} is a Java reserved word.

System Action

Processing is interrupted.

User Action

Take the following actions:

- If this message is output during Web service application development:
 - If editing the complexType definition of the WSDL file schema directly, revise the complexType definition of the schema so that a Java reserved word is not used.
 - If the @javax.jws.WebParam annotation or the @javax.jws.WebResult annotation is being used, revise the annotation so that a Java reserved word is not used in the name attribute.
- If this message is output during development of a client application that uses a Web service:
 - Use a JAX-WS or JAXB binding file specified in the -b option of the ijwsimport command to customize the Java reserved word name specified in the complexType definition of the WSDL file schema.

[ERROR] JAXWS0870: Invalid operation "{0}", can't generate java method. Parameter,customized name "{1}" is a java keyword.

Variable Information

{0}: name attribute value of the wsdl:operation element
{1}: Customized parameter name

Explanation

The wsdl:operation element {0} is invalid. The Java method corresponding to the wsdl:operation element {0} cannot be generated because the customized parameter name {1} is a Java reserved word.

System Action

Processing is interrupted.

User Action

Revise the customized parameter name {1} in the JAX-WS or JAXB binding file specified in the -b option of the ijwsimport command so that a Java reserved word is not used.

[WARNING] JAXWS0871: Ignoring operation "{0}", it's java reserved word, can't generate java method. Use customization to change the operation name.

Variable Information

{0}: name attribute value of the wsdl:operation element

Explanation

The wsdl:operation element {0} is ignored. The Java method cannot be generated because the name of the wsdl:operation element {0} is a Java reserved word.

System Action

The wsdl:operation element shown in the variable information {0} is ignored and processing is continued. In this case, the application cannot use the Web service associated with the ignored wsdl:operation element information.

User Action

Take the following actions:

- If this message is output during Web service application development:
 - If editing the WSDL file directly, revise the file so that a Java reserved word is not used in the wsdl:operation element {0} name.
 - If the @javax.jws.WebMethod annotation is being used, revise the annotation so that a Java reserved word is not used in the operationName attribute.
- If this message is output during development of a client application that uses a Web service:
 - Use a JAX-WS or JAXB binding file specified in the -b option of the ijwsimport command to customize the Java reserved word name specified in the WSDL file wsdl:operation element {0}.

[ERROR] JAXWS0872: Invalid operation "{0}", it's java reserved word, can't generate java method. Use customization to change the operation name.

Variable Information

{0}: name attribute value of the wsdl:operation element

Explanation

The wsdl:operation element {0} is invalid. The Java method cannot be generated because the name of the wsdl:operation element {0} is a Java reserved word.

System Action

Processing is interrupted.

User Action

Take the following actions:

- If this message is output during Web service application development:
 - If editing the WSDL file directly, revise the file so that a Java reserved word is not used in the wsdl:operation element {0} name.
 - If the @javax.jws.WebMethod annotation is being used, revise the annotation so that a Java reserved word is not used in the operationName attribute.
- If this message is output during development of a client application that uses a Web service:
 - Use a JAX-WS or JAXB binding file specified in the -b option of the ijwsimport command to customize the Java reserved word name specified in the WSDL file wsdl:operation element {0}.

[WARNING] JAXWS0873: Ignoring operation "{0}", can't generate java method ,customized name "{1}" of the wsdl:operation is a java keyword.

Variable Information

{0}: name attribute value of the wsdl:operation element

{1}: Customized operation name

Explanation

The wsdl:operation element {0} is invalid. The Java method cannot be generated because the customized operation name {1} is a Java reserved word.

System Action

The customized operation name shown in the variable information {1} is ignored and processing is continued. In this case, the application cannot use the Web service associated with the ignored operation name information.

User Action

Revise the customized operation name {1} in the JAX-WS or JAXB binding file specified in the -b option of the ijwsimport command so that a Java reserved word is not used.

[ERROR] JAXWS0874: Invalid operation "{0}", can't generate java method ,customized name "{1}" of the wsdl:operation is a java keyword.

Variable Information

{0}: name attribute value of the wsdl:operation element

{1}: Customized operation name

Explanation

The wsdl:operation element {0} is invalid. The Java method corresponding to the wsdl:operation element {0} cannot be generated because the customized operation name {1} is a Java reserved word.

System Action

Processing is interrupted.

User Action

Revise the customized operation name {1} in the JAX-WS or JAXB binding file specified in the -b option of the ijwsimport command so that a Java reserved word is not used.

[ERROR] JAXWS0877: Non unique body parts! In a port, as per BP 1.1 R2710 operations must have unique operation signature on the wire for successful dispatch. In port {0}, Operations "{1}" and "{2}" have the same request body block {3}. Try running ijwsimport with -extension switch, runtime will try to dispatch using SOAPAction

Variable Information

{0}: name attribute value of the wsdl:port element
{1}: name attribute value 1 of the wsdl:operation element
{2}: name attribute value 2 of the wsdl:operation element
{3}: QName of the child element of the SOAP soap:Body element (QName of the wsdl:message element)

Explanation

The specified WSDL does not conform to WS-I Basic Profile 1.1 R2710. The communication message content definition is duplicated by another wsdl:operation element.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Check whether more than one WSDL file wsdl:operation element references the same wsdl:message or xs:element element.
- Ensure the WSDL file conforms to WS-I Basic Profile 1.1 R2710.

JAXWS0878: Non unique body parts! In a port, as per BP 1.1 R2710 operations must have unique operation signature on the wire for successful dispatch. In port {0}, Operations "{1}" and "{2}" have the same request body block {3}. Method dispatching may fail, runtime will try to dispatch using SOAPAction

Variable Information

{0}: name attribute value of the wsdl:port element
{1}: name attribute value 1 of the wsdl:operation element
{2}: name attribute value 2 of the wsdl:operation element
{3}: QName of the child element of the SOAP soap:Body element (QName of the wsdl:message element)

Explanation

The specified WSDL does not comply with WS-I Basic Profile 1.1 R2710.

The communication message content definition is duplicated in different wsdl:operation elements.

System Action

Processing is continued.

User Action

Follow the procedure below:.

- Check whether multiple WSDL file wsdl:operation elements have referenced the same wsdl:message or xs:element element.
- Make the WSDL file comply with WS-I Basic Profile 1.1 R2710.

13.26.8 JAXWS0900 to JAXWS0999

JAXWS0957: The method {0} of class {1} is annotated @Oneway but has a return type.

Variable Information

{0}: Method name
{1}: Class name

Explanation

The value cannot be returned in a method that has the @javax.jws.Oneway annotation declared.

System Action

Processing is interrupted.

User Action

Avoid returning a value in a method that has the @javax.jws.Oneway annotation declared.

JAXWS0959: The method {0} of class {1} is annotated @Oneway but declares the exception {2}

Variable Information

{0}: Method name
{1}: Class name
{2}: Exception class name

Explanation

An exception cannot be specified in a method that has the @javax.jws.Oneway annotation declared.

System Action

Processing is interrupted.

User Action

Avoid specifying an exception in a method that has the @javax.jws.Oneway annotation declared.

JAXWS0972: The endpointInterface class {0} could not be found

Variable Information

{0}: Endpoint interface

Explanation

An endpoint interface class that does not exist in the @javax.jws.WebService annotation endpointInterface attribute ({0}) was specified.

System Action

Processing is interrupted.

User Action

Follow the procedure below:

- Make sure that the @javax.jws.WebService annotation endpointInterface attribute is correct.
- If the @javax.jws.WebService annotation endpointInterface attribute is correct, then make sure that the specified classpath is correct.

JAXWS0973: A service endpoint interface cannot contain constant declaration: Interface: {0} field: {1}.

Variable Information

{0}: Service endpoint interface name
{1}: Constant field name

Explanation

A constant cannot be declared in a service endpoint interface.

System Action

Processing is interrupted.

User Action

Do not declare a constant in a service endpoint interface.

JAXWS0975: Method parameter types cannot implement java.rmi.Remote. Class: {0} method: {1} parameter: {2} type: {3}

Variable Information

{0}: Class name
{1}: Method name
{2}: Argument variable name
{3}: Argument type

Explanation

A class in which java.rmi.Remote is implemented cannot be used in an argument for a method published as a Web service operation.

System Action

Processing is interrupted.

User Action

Do not specify a class in which java.rmi.Remote is implemented in an argument for a method published as a Web service operation.

JAXWS0977: Request wrapper bean names must be unique and must not clash with other generated classes. Class: {0} method {1}

Variable Information

{0}: Service endpoint interface name
{1}: Method name or operation element value

Explanation

The JAX-WS wrapper class name of a Web service operation is duplicated.

System Action

Processing is interrupted.

User Action

The Web service endpoint method name or the operationName element value in the javax.jws.WebMethod annotation is duplicated within the same package. The name might be treated as duplicated even if the starting characters only differ in terms of uppercase and lowercase use. Correct the annotation so that there is no duplication.

JAXWS0982: RPC literal SOAPBindings must have parameterStyle WRAPPED. Class: {0}

Variable Information

{0}: Class name

Explanation

For an RPC literal, WRAPPED must be specified for the parameterStyle value in the @javax.jws.soap.SOAPBinding annotation.

System Action

Processing is interrupted.

User Action

Either specify SOAPBinding.ParameterStyle.WRAPPED in the parameterStyle parameter of the @javax.jws.soap.SOAPBinding annotation assigned to class {0}, or omit the parameterStyle parameter and use the default value.

JAXWS0989: The @{0} annotation cannot be used in with @javax.jws.WebService.endpointInterface element.

Variable Information

{0}: annotation name

Explanation

The annotation {0} cannot be specified for a class in which the endpointInterface attribute of the @javax.jws.WebService annotation is declared.

System Action

Processing is interrupted.

User Action

Correct the application so that the annotation {0} and the endpointInterface attribute of the @javax.jws.WebService annotation are not declared for a class at the same time, and then execute again.

JAXWS0992: The @javax.jws.WebService.{0} element cannot be specified on a service endpoint interface. Class: {1}

Variable Information

{0}: Either the serviceName or the portName

{1}: Class name of the service endpoint interface

Explanation

The @javax.jws.WebService annotation serviceName and portName attributes cannot be declared in the service endpoint interface.

System Action

Processing is interrupted.

User Action

Revise the service endpoint interface declaration and correct so that the @javax.jws.WebService annotation serviceName and portName attributes are not declared.

JAXWS0994: The @javax.jws.WebMethod({0}) cannot be used on a service endpoint interface. Class: {1} method: {2}

Variable Information

{0}: @javax.jws.WebMethod annotation attribute

{1}: Class name

{2}: Method name

Explanation

The @javax.jws.WebMethod annotation attribute {0} cannot be specified in the service endpoint interface.

System Action

Processing is interrupted.

User Action

Do not specify the `@javax.jws.WebMethod` annotation attribute {0} in the service endpoint interface.

JAXWS0995: The `@javax.jws.WebMethod`{0} element cannot be specified with the `@javax.jws.WebMethod.exclude` element. Class: {1} method: {2}

Variable Information

{0}: `@javax.jws.WebMethod` annotation attribute

{1}: Class name

{2}: Method name

Explanation

The `@javax.jws.WebMethod` annotation attribute {0} cannot be specified together with the `@javax.jws.WebMethod` annotation `exclude` attribute.

System Action

Processing is interrupted.

User Action

Either do not specify the `@javax.jws.WebMethod` annotation attribute {0} or do not specify the `exclude` attribute.

JAXWS0998: `@Oneway` methods cannot have out parameters. Class: {0} method {1}

Variable Information

{0}: Class name

{1}: Method name

Explanation

`javax.jws.WebParam.Mode.OUT` and `javax.jws.WebParam.Mode.INOUT` cannot be specified in the `@javax.jws.WebParam` annotation `mode` attribute in the arguments of a method in which the `@javax.jws.Oneway` annotation is declared.

System Action

Processing is interrupted.

User Action

Do not specify `javax.jws.WebParam.Mode.OUT` and `javax.jws.WebParam.Mode.INOUT` in the `@javax.jws.WebParam` annotation `mode` attribute in the arguments of a method in which the `@javax.jws.Oneway` annotation is declared.

13.26.9 JAXWS1000 to JAXWS1099

JAXWS1008: Methods in an `endpointInterface` must be implemented in the implementation class. Interface Class:{0} Implementation Class:{1} Method: {2}

Variable Information

{0}: Service endpoint interface name

{1}: Service endpoint interface endpoint implementation class name

{2}: Method name defined in the service endpoint interface

Explanation

The method defined in the service endpoint interface was not implemented in the endpoint implementation class.

System Action

Processing continues.

User Action

In the endpoint implementation class of the service endpoint interface, check that all the defined methods have been implemented then reexecute the operation.

JAXWS1009: @javax.jws.Webservice annotated classes that do not belong to a package must have the @javax.jws.Webservice.targetNamespace element. Class: {0}

Variable Information

{0}: SEI name

Explanation

A class that does not belong to a package and has the @javax.jws.Webservice annotation specified must have the @javax.jws.Webservice.targetNamespace element.

System Action

Processing is interrupted.

User Action

Ensure that the targetNamespace element is specified in the @WebService annotation if a class or interface does not have a package declaration.

JAXWS1040: unrecognized parameter {0}

Variable Information

{0}: Specified command option

Explanation

The specified command option is not supported.

System Action

Processing is interrupted.

User Action

Specify the correct command option.

JAXWS1046: directory not found: {0}

Variable Information

{0}: Value specified in the option command

Note: For the ijwsimport command, the value specified for either the -s option or the -d option is output.

Explanation

The directory specified in the option cannot be found.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Specify an existing directory.
- Check the directory access permission.

JAXWS1047: option {0} requires an argument

Variable Information

{0}: Specified command option

Explanation

A command option argument is not specified.

System Action

Processing is interrupted.

User Action

Specify an argument for the command option.

error: JAXWS1048: compilation failed, errors should have been reported



Note

For ijwsimport, "error" is not attached at the start of the message text.

Explanation

An error occurred in compile processing or annotation processing.

System Action

Processing is interrupted.

User Action

Follow the action advised in the error information or exception information which was output immediately before to remove the cause of the error, then reexecute. If this message is output at the time of the deployment, and the deployment files (WAR module/ejb-jar module) include unnecessary Java source files, investigate clearing out these files. If these files need to be included, check the following:

- Does the source for the class files included in the deployment files match the class files? (Example: After the class files are generated, have only the source files been modified?)
- Are sufficient class files and JAR files included in the deployment files for the source compile?
- Is compile possible using JDK javac?
- When non-ASCII characters are included, do they match the character code of the environment which executes the deployment processing?

JAXWS1049: Missing WSDL_URI

Explanation

The WSDL URL is not specified.

System Action

Processing is interrupted.

User Action

Specify the WSDL URL.

JAXWS1050: "{0}" is not a supported protocol. Supported protocols include: soap1.1, Xsoap1.2.

Variable Information

{0}: Value specified for the -wsdl option

Explanation

An unsupported protocol was specified for the -wsdl option.

System Action

Processing is interrupted.

User Action

Refer to {0} and specify either soap1.1 or Xsoap1.2.

JAXWS1052: Class not found: "{0}"

Variable Information

{0}: Class name

Explanation

The class was not found.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Check the value specified for the -cp option.
 - Specify an existing class.
 - Check the storage destination of the specified class and the file access permission.
-

JAXWS1054: Missing SEI

Explanation

SEI is not specified.

System Action

Processing is interrupted.

User Action

Specify the SEI.

JAXWS1056: The "{0}" option can only be in conjunction with the "-wsdl" option.

Variable Information

{0}: -portname option or -servicename option

Explanation

If the {0} option is specified, the -wsdl option must also be specified at the same time.

System Action

Processing is interrupted.

User Action

If the {0} option is specified, also specify the -wsdl option at the same time.

JAXWS1061: The class "{0}" is not an endpoint implementation class.

Variable Information

{0}: Class name

Explanation

Class {0} is not an endpoint implementation class.

System Action

Processing is interrupted.

User Action

Neither enum nor an interface class can be used as an endpoint implementation class. For the endpoint implementation class, specify a class to which the @javax.jws.WebService annotation has been assigned.

JAXWS1063: ijwsген can not generate WSDL for non-SOAP binding: {0} on Class {1}

Variable Information

{0}: Value specified in the javax.xml.ws.BindingType annotation

{1}: Class name

Explanation

Web service definition information cannot be generated because a binding that cannot be specified was specified.

System Action

Processing is interrupted.

User Action

When deploying a Web service application that uses the @javax.jws.WebService annotation, either omit the @javax.xml.ws.BindingType annotation or specify one of the following:

- javax.xml.ws.soap.SOAPBinding.SOAP11HTTP_BINDING
- javax.xml.ws.soap.SOAPBinding.SOAP11HTTP_MTOM_BINDING

JAXWS1064: ijwsген can not generate WSDL for SOAP 1.2 binding: {0} on class: {1}.

Variable Information

{0}: @javax.xml.ws.BindingType "value" value

{1}: Class name

Explanation

A WSDL file cannot be generated if the following values are specified in the @javax.xml.ws.BindingType "value" value:

- javax.xml.ws.soap.SOAPBinding.SOAP12HTTP_BINDING(<http://www.w3.org/2003/05/soap/bindings/HTTP/>)
- javax.xml.ws.soap.SOAPBinding.SOAP12HTTP_MTOM_BINDING(<http://www.w3.org/2003/05/soap/bindings/HTTP/?mtom=true>)

System Action

Processing is interrupted.

User Action

Specify either of the following, indicating SOAP1.1, as the @javax.xml.ws.BindingType "value" value, and then execute again:

- javax.xml.ws.soap.SOAPBinding.SOAP11HTTP_BINDING(<http://schemas.xmlsoap.org/wsdl/soap/http>)
- javax.xml.ws.soap.SOAPBinding.SOAP11HTTP_MTOM_BINDING(<http://schemas.xmlsoap.org/wsdl/soap/http?mtom=true>)

JAXWS1073: "{0}" is not a valid target version. "2.0" and "2.1" are supported.

Variable Information

{0}: Value specified for the -target option

Explanation

Version {0} is not supported. "2.0" and "2.1" are supported.

System Action

Processing is interrupted.

User Action

Specify a supported version.

JAXWS1075: Trying to read authorization file : "{0}"...

Variable Information

{0}: Authentication information file name

Explanation

An attempt is being made to read the authentication information file.

JAXWS1077: {0}, "{1}" needs authorization, please use -Xauthfile to give the authorization file and on each line provide authorization information using this format : http[s]://user:password@host:port//<url-path>

Variable Information

{0}: Detail information

{1}: WSDL URL for which fetch failed

Explanation

Authentication is required in order to fetch the WSDL file.

Authentication information must be specified in the -Xauthfile option of the ijwsimport command.

System Action

Processing is interrupted.

User Action

Store the authentication information file in accordance with the message content and then execute the command again. For details, refer to "ijwsimport".

13.26.10 JAXWS1100 to JAXWS1199

[ERROR] JAXWS1106: invalid extension element: "{0}" (in namespace "{1}")

Variable Information

{0}: Element name

{1}: Name space

Explanation

Element {0} of name space {1} is an invalid extension element.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Check whether the element shown in the variable information {0} is correct.
- If the element shown in the variable information {0} is not required, delete the element.

[ERROR] JAXWS1110: operation "{0}" has an invalid style

Variable Information

{0}: name attribute value of the wsdl:operation element

Explanation

Invalid content is defined in the WSDL file wsdl:operation element {0}.

System Action

Processing is interrupted.

User Action

Correct the WSDL file wsdl:operation element definition.

[ERROR] JAXWS1129: duplicate "{0}" entity: "{1}"

Variable Information

{0}: wsdl element name

{1}: name attribute value of {0}

Explanation

There is a duplicate specification in the WSDL file.

System Action

Processing is interrupted.

User Action

Revise the WSDL file to remove the cause of the error, and then execute again.

[ERROR] JAXWS1135: missing required property "{0}" of element "{1}"

Variable Information

{0}: wsdl attribute name

{1}: wsdl element name

Explanation

Attribute {0} is not specified in WSDL file element {1}.

System Action

Processing is interrupted.

User Action

Refer to the error information output immediately prior to this message and remove the cause of the error, then execute again.

[ERROR] JAXWS1141: Invalid WSDL, duplicate parts in a wsdl:message is not allowed. wsdl:message {0} has a duplicated part name: {1}

Variable Information

{0}: name attribute value of the wsdl:message element
{1}: name attribute value of the wsdl:part element

Explanation

The WSDL file is invalid because there is a duplicated definition in the wsdl:message element.

There is a duplicated definition {1} in the wsdl:message element {0}.

System Action

Processing is interrupted.

User Action

Revise the wsdl:part element defined in the WSDL file wsdl:message element.

JAXWS1160: Failed to parse the WSDL.

Explanation

WSDL analysis failed.

System Action

Processing is interrupted.

User Action

Refer to the error information output immediately prior to this message and remove the cause of the error, then execute again.

[ERROR] JAXWS1162: Unable to parse "{0}" : {1}

Variable Information

{0}: External resource path or URL
{1}: Exception information

Explanation

The parsing of the external resources or the URL failed.

Cause

The main possible causes are as follows:

- The specified external resource file format or content may be invalid.
- The specified external resources may not exist.
- There may be a problem in the network environment (router, proxy server).
- There may be a problem in the proxy settings used (system proxy settings, proxy specified in the command).
- The external resources or directory access privileges may not have been set correctly.
- The specified external resource path or URL may be invalid.
- The specified external resource URL format may be invalid.

System Action

Processing is interrupted.

User Action

Check the exception information, file format and content of the specified external resources, path or URL, proxy, network, local file system, and file or directory access privileges to remove the cause of the error described in **Cause**, then reexecute.

[ERROR] JAXWS1169: "{0}" is not a part of this compilation. Is this a mistake for "{1}"?**Variable Information**

{0}: wsdlLocation attribute value in the jaxws:bindings element
{1}: WSDL file URI assumed as the value intended for {0}

Explanation

WSDL {0} is not the correct specification for the wsdlLocation attribute in the jaxws:bindings element. {1} is suggested as the value that should be specified for this attribute.

System Action

Processing is interrupted.

User Action

Revise the wsdlLocation attribute value in the jaxws:bindings element.

[ERROR] JAXWS1171: XPath evaluation of "{0}" results in an empty target node**Variable Information**

{0}: Element expressing the XPath

Explanation

Evaluation of the XPath at {0} was attempted but the target node is empty.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Check whether the element shown in the variable information {0} exists.
- Revise the XPath in the variable information {0}.

[ERROR] JAXWS1172: XPath evaluation of "{0}" results in too many ({1}) target nodes**Variable Information**

{0}: Element expressing the XPath
{1}: Number of target nodes

Explanation

Evaluation of the XPath at {0} was attempted but there are too many target nodes.

System Action

Processing is interrupted.

User Action

Revise the XPath expression so that there is only one target node.

[ERROR] JAXWS1178: {0} is unreachable**Variable Information**

{0}: WSDL_URI

Explanation

The WSDL_URI{0} cannot be found.

Cause

The main possible causes are as follows:

- The WSDL path or the URL might not be correctly specified.
- The specified URL might not currently provide a Web service.
- There might be a network environment problem (router, proxy server, etc.).
- There might be a problem with the proxy settings that are being used (system proxy settings, a proxy specified by a command, etc.).
- The WSDL file or directory access privileges might not have been set correctly.

System Action

Processing is interrupted.

User Action

Check the specified WSDL path or URL, the proxy, the network, the local file system, file or directory access privileges, etc. Remove the error causes noted under "Cause", then execute again.

[ERROR] JAXWS1179: {0} Failed to read the WSDL document: {1}, because 1) could not find the document; / 2) the document could not be read; 3) the root element of the document is not <wsdl:definitions>.

Variable Information

{0}: The following exceptions (including subclasses) issued during WSDL analysis or detail information is output:

- java.io.IOException
- org.xml.sax.SAXParseException
- org.xml.sax.SAXException

{1}: WSDL name

Explanation

WSDL {1} read failed because the information in variable information {0} was issued.

Cause

The main possible causes are as follows:

- The specified WSDL was not found.
- The specified WSDL cannot be read.
- The root element of the specified WSDL is not <wsdl:definitions>.
- WSDL cannot be saved to the local file.
- There might be a network environment problem (router, proxy server, etc.).
- There might be a problem with the proxy settings that are being used (system proxy settings, a proxy specified by a command, etc.).

If SSL is being used, the main possible causes are as follows:

- A key store is not set.
- The key store cannot be accessed.
- A required certificate is not registered in the certificate environment.
- The server site certificate content does not match the specified URL.
- Certificate content is missing.

If SSL client authentication is performed, the main possible causes are as follows:

- The client certificate is not sent to the server.
- A client certificate that cannot be analyzed might have been sent to the server.

System Action

Processing is interrupted.

User Action

Check the specified WSDL path or URL, the proxy, the network, the local file system, file or directory access privileges, etc. Remove the error causes noted under "Cause", then execute again.

If SSL is used, check the WSDL URL, the key store settings, the certificate environment, the certificates, file or directory access privileges, etc. Remove the error causes noted under "Cause", then execute again.

[ERROR] JAXWS1180: Could not find wsdl:service in the provided WSDL(s): {0} At least one WSDL with at least one service definition needs to be provided.

Variable Information

{0}: WSDL name

Explanation

The wsdl:service element was not found in the provided WSDL {0}. At least one wsdl:service element is required in a WSDL.

System Action

Processing is interrupted.

User Action

Specify the correct WSDL file. If you are obtaining the WSDL file from the Internet, review your proxy settings to make sure the WSDL file can be accessed.

JAXWS1181: An error occurred during ijwsngen processing. The nested exception is :

Explanation

An error occurred during generation of the Web service definition information.

System Action

Processing is interrupted.

User Action

Refer to the stack trace that is output after this message and take action. If an error message is also output prior to this message, follow the action advised in that message.

JAXWS1182: An error occurred during ijwsimport processing. The nested exception is :

Explanation

An error occurred during ijwsimport processing.

System Action

Processing is interrupted.

User Action

Refer to the stack trace that is output after this message and take action. If an error message is also output prior to this message, follow the action advised in that message.

13.26.11 JAXWS2000 to JAXWS2099

ERROR: ISJEE_JAXWS2006: An Exception occurred. {0}

Variable Information

{0}: Exception detail information

Explanation

An exception occurred.

System Action

Processing is interrupted.

User Action

Follow the action advised in the exception detail information and remove the error cause.

ERROR: ISJEE_JAXWS2007: An InvocationTargetException occurred. {0}

Variable Information

{0}: Exception detail information

Explanation

An exception occurred for the Web service application.

System Action

Processing is interrupted.

User Action

Follow the action advised in the exception detail information and remove the error cause.

ERROR: ISJEE_JAXWS2008: An Exception occurred. {0}

Variable Information

{0}: Exception detail information

Explanation

An exception occurred when the Web service application was called or the response message was created.

System Action

Processing is interrupted.

User Action

The main possible causes are as follows:

- The received request message argument data is invalid.

Check whether the caller sent the correct message based on the correct WSDL.

- The Web service application resources are invalid.

Check whether the Web service application or class used in the argument of the target public method is either a resource that can be instantiated correctly, or is contained in the module and deployed correctly.

In all other cases, follow the action advised in the exception detail information and remove the error cause.

JAXWS2015: An ExceptionHasMessage occurred.

Explanation

An exception occurred.

System Action

Processing is interrupted.

User Action

Follow the action advised in the message that is output immediately after this message.

JAXWS2016: An UnsupportedMediaException occurred.

Explanation

An unsupported MIME type was detected.

System Action

Processing is interrupted.

User Action

Follow the action advised in the message that is output immediately after this message.

If nothing is output immediately after this message, take the following actions:

- If this message was output when the Web service application was executed:
 - Check whether the WSDL supplied to the Web service user is correct.
 - Ask the Web service user whether the connection destination URL is correct.
 - Ask the Web service user whether a SOAP message conforming to WSDL is being sent.
- If this message was output when the Web service client application was executed:
 - Check whether the application being developed uses a WSDL provided by the connection destination Web service.
 - Check the connection destination URL and, if there is an error, correct it.
 - Check the application and, if the API parameters being used or the method of use are incorrect, correct the application.
 - Ask the Web service provider whether a SOAP message conforming to WSDL is being sent.

ERROR: ISJEE_JAXWS2022: caught throwable

Explanation

An exception occurred.

System Action

Processing is interrupted.

User Action

Refer to the subsequent stack trace and, if required, take action.

WARNING: ISJEE_JAXWS2027: An InvalidMapException occurred. {0}, Problem header:{1}, Reason: {2}

Variable Information

{0}: Detail information

One of the following is output:

- If the WS-Addressing name space name is `http://www.w3.org/2005/08/addressing`:
 - A header representing a Message Addressing Property is not valid and the message cannot be processed

- If the WS-Addressing name space name is <http://schemas.xmlsoap.org/ws/2004/08/addressing>:

A message information header is not valid and the message cannot be processed.

{1}: Header name

{2}: Cause

Explanation

The WS-Addressing header of the received SOAP request contains an error.

Cause

The following are possible causes:

- If the cause {2} includes "ActionMismatch":

The value specified in the SOAPAction header and the value specified in the WS-Addressing Action header do not match.

- If the cause {2} includes "InvalidCardinality" or "InvalidMessageInformationHeader":

WS-Addressing header {1} is a duplicate specification.

System Action

Processing is interrupted.

User Action

Take the following actions:

- If the cause {2} includes "ActionMismatch":

At the SOAP request send source, if a value is specified in the SOAPAction header, match the WS-Addressing header {1} value.

- If the cause {2} includes "InvalidCardinality" or "InvalidMessageInformationHeader":

At the SOAP request send source, revise the WS-Addressing header {1}.

If content other than the above is output as cause {2}, refer to the cause {2} and, at the SOAP request send source, take action in accordance with the WS-Addressing specifications.

WARNING: ISJEE_JAXWS2028: A MapRequiredException occurred. {0}, Problem header:{1}

Variable Information

{0}: Detail information

One of the following is output:

- If the WS-Addressing name space name is <http://www.w3.org/2005/08/addressing>:

A required header representing a Message Addressing Property is not present

- If the WS-Addressing name space name is <http://schemas.xmlsoap.org/ws/2004/08/addressing>:

A required message information header, To, MessageID, or Action, is not present.

{1}: Header name

Explanation

A mandatory header does not exist in the WS-Addressing header of the received SOAP request.

System Action

Processing is interrupted.

User Action

At the SOAP request send source, revise the WS-Addressing header {1}.

INFO: ISJEE_JAXWS2040: An InvocationTargetException occurred. {0}**Variable Information**

{0}: Exception detail information

Explanation

The Web service application threw an exception that is defined in the application.

User Action

If required, take action in accordance with the application specifications.

INFO: ISJEE_JAXWS2043: Sent Fault response.

faultcode:{0}
faultstring:{1}
{2}

Variable Information

{0}: faultcode tag value
{1}: faultstring tag value
{2}: SOAP 1.1 Fault

Explanation

A fault response with the content output in the variable information was sent.

User Action

Refer to the content output in the variable information and messages output prior to this message and, if required, take action.

**Note**

- If the size of the fault response exceeds 256 Kbytes, only the first 256 Kbytes are output at variable information {2}.
 - If the fault response includes an attached file, variable information {2} is not output.
-

INFO: ISJEE_JAXWS2044: Sent Fault response.

Code:{0}
Reason:{1}
{2}

Variable Information

{0}: Code tag value
{1}: Reason tag value
{2}: SOAP 1.2 Fault

Explanation

A fault response with the content output in the variable information was sent.

User Action

Refer to the content output in the variable information and messages output prior to this message and, if required, take action.

**Note**

- If the size of the fault response exceeds 256 Kbytes, only the first 256 Kbytes are output at variable information {2}.
 - If the fault response includes an attached file, variable information {2} is not output.
-

INFO: ISJEE_JAXWS2046: Fault is created from this exception information.

Explanation

The fault is created from this exception information.

INFO: ISJEE_JAXWS2047: Fault is created from this exception information.

Explanation

The fault is created from this exception information.

INFO: ISJEE_JAXWS2048: Sent Fault response.

{0}

Variable Information

{0}: SOAP 1.1 Fault

Explanation

A fault response with the content output in the variable information was sent.

User Action

Refer to the content output in the variable information and messages output prior to this message and, if required, take action.



- If the size of the fault response exceeds 256 Kbytes, only the first 256 Kbytes are output at variable information {0}.
- If the fault response includes an attached file, variable information {0} is not output.

13.27 Messages that Contain "JBIMA" in the Message ID

13.27.1 JBIMA1600 to JBIMA1699

ERROR: ISJEE_JBIMA1602: An archive of type {0} and name {1} already exists in the repository

Variable Information

{0}: Type name

{1}: Element name

Explanation

The specified element name is already registered in the repository.

System Action

Processing is continued.

User Action

If the type name is "SHARED-LIBRARY" and the element name is "sun-wsdl-library", no action is required.

Otherwise, identify the operation from the type name and element name and take action.

If this does not solve the problem, contact your service engineer.

WARNING: ISJEE_JBIMA1602: An archive of type {0} and name {1} already exists in the repository

Variable Information

{0}: Type name
{1}: Element name

Explanation

The specified element name is already registered in the repository.

System Action

Processing is continued.

User Action

If the type name is "SHARED-LIBRARY" and the element name is "sun-wsdl-library", no action is required.

Otherwise, identify the operation from the type name and element name and take action.

If this does not solve the problem, contact your service engineer.

13.27.2 JBIMA1700 to JBIMA1799

ERROR: ISJEE_JBIMA1700: Synchronization failed with the following exception:

Explanation

Synchronization failed.

System Action

Processing is continued without performing synchronization.

User Action

Refer to the message that was also output and fix the error.

ERROR: ISJEE_JBIMA1705: Synchronization failed to install component ({0}) with exception

Variable Information

{0}:Component name

Explanation

Component installation failed when starting the IJServer cluster.

System Action

Processing is continued without installing the component.

User Action

If the component name is "sun-http-binding", no action is required.

Otherwise, follow the action advised in the exception information.

If this does not solve the problem, contact your service engineer.

WARNING: ISJEE_JBIMA1705: Synchronization failed to install component ({0}) with exception

Variable Information

{0}: Component name

Explanation

Component installation failed when starting the IJServer cluster.

System Action

Processing is continued without installing the component.

User Action

If the component name is "sun-http-binding", no action is required.

Otherwise, follow the action advised in the exception information.

If this does not solve the problem, contact your service engineer.

13.28 Messages that Contain "JDBCRA" in the Message ID

13.28.1 JDBCRA0000 to JDBCRA0099

JDBCRA0001: Delimiter not specified in configuration

Explanation

A delimiter was not defined.

System Action

Processing is interrupted.

User Action

Contact a Systems Engineer.

JDBCRA0002: Class name is wrong or classpath is not set for : {0}

Variable Information

{0}: Class name

Explanation

The specified class name is incorrect, or the classpath was not set.

System Action

Processing is interrupted.

User Action

Make sure that the specified class name is correct, and that the classpath for the specified class was set correctly.

JDBCRA0003: Error instantiating class : {0}

Variable Information

{0}: Class name

Explanation

Failed to generate the class.

System Action

Processing is interrupted.

User Action

Make sure that the specified class name is correct.

JDBCRA0004: Access error in instantiating class : {0}

Variable Information

{0}: Class name

Explanation

Failed to generate the class.

System Action

Processing is interrupted.

User Action

Make sure that the specified class name is correct.

JDBCRA0005: Escape character not specified in configuration

Explanation

An escape character was not defined.

System Action

Processing is interrupted.

User Action

Contact a Systems Engineer.

JDBCRA0006: Connection could not be allocated because: {0}

Variable Information

{0}: Error information

Explanation

An error occurred during connection to the database.

System Action

Processing is interrupted.

User Action

Check that the JDBC Connection Pool settings are correct. The error information that is output to the variable information is an error message returned by the getConnection method of the data source class that is provided in the JDBC driver. Refer to the error information to identify the cause of the error, then take action. Possible causes are as follows:

- The database is not running normally.
- There is a problem in the network connection with the database.
- There is a problem in the JDBC Connection Pool settings content.
- An environment variable (such as ORACLE_HOME) was not set correctly.

Additionally, using the definition information set for the JDBC Connection Pool you can check whether access to the database is possible beforehand using the Ping feature. If the cause of the error cannot be identified, contact the JDBC driver provider.

JDBCRA0007: Connection object cannot be null

Explanation

null cannot be specified for the connection object.

System Action

Processing is interrupted.

User Action

Contact a Systems Engineer.

JDBCRA0008: The ManagedConnectionFactory that has created this ManagedConnection is not the same as the ManagedConnectionFactory returned by the PasswordCredential for this ManagedConnectionjdbc.

Explanation

The password information is illegal.

System Action

Processing is interrupted.

User Action

Contact a Systems Engineer.

JDBCRA0009: Connection handle cannot be null

Explanation

null cannot be specified for the connection handle.

System Action

Processing is interrupted.

User Action

Contact a Systems Engineer.

JDBCRA0010: The isolation level for this connection could not be retrieved

Explanation

The transaction isolation level could not be set.

System Action

Processing is interrupted.

User Action

Make sure that the specified transaction isolation level is correct.

JDBCRA0011: Error while destroying resource :

Explanation

An error occurred while the resource was being destroyed.

System Action

Processing is interrupted.

User Action

Take action according to the error information output immediately after. Make sure that there is enough memory.

JDBCRA0012: This Managed Connection is not valid as the physical connection is not usable

Explanation

The physical connection is invalid.

System Action

Processing is interrupted.

User Action

Reestablish the connection.

JDBCRA0013: This physical connection is not usable

Explanation

The physical connection is invalid.

System Action

Processing is interrupted.

User Action

Reestablish the connection.

JDBCRA0014: Access denied to execute this method : {0}

Variable Information

{0}: Error information

Explanation

The method cannot be executed.

System Action

Processing is interrupted.

User Action

Refer to the error information and take action.

JDBCRA0015: Arguments are wrong for the method : {0}

Variable Information

{0}: Error information

Explanation

The attribute is invalid.

System Action

Processing is interrupted.

User Action

Refer to the error information and take action.

JDBCRA0016: Parameter wrong for this method : {0}

Variable Information

{0}: Error information

Explanation

The parameter is invalid.

System Action

Processing is interrupted.

User Action

Refer to the error information and take action.

JDBCRA0017: No PasswordCredential found

Explanation

A password was not specified.

System Action

Processing is interrupted.

User Action

Specify a password.

JDBCRA0018: Cannot enlist this ManagedConnection in this transaction because : {0}

Variable Information

{0}: Error information

Explanation

The connection cannot be registered in the transaction.

System Action

Processing is interrupted.

User Action

Refer to the error information and take action.

JDBCRA0019: Cannot associate this ManagedConnection because : {0}

Variable Information

{0}: Error information

Explanation

This ManagedConnection cannot be associated.

System Action

Processing is interrupted.

User Action

Refer to the error information and take action.

JDBCRA0020: SQL Exception : Unable to set AutoCommit property.

Explanation

The AutoCommit property cannot be specified.

System Action

Processing is interrupted.

User Action

Make sure that the specified class name is correct.

JDBCRA0021: Error casting to javax.sql.DataSource : {0}

Variable Information

{0}: Error information

Explanation

The specified class could not be cast using the javax.sql.DataSource interface.

System Action

Processing is interrupted.

User Action

Make sure that the specified class name is correct.

JDBCRA0022: An XAException occurred in recovering an Oracle resource.

Explanation

An error occurred when the recover method was executed for Oracle resources.

System Action

An exception is returned.

User Action

Follow the action advised in the exception information that is output before and after this message to remove the cause of the error described in the resource manuals.

13.29 Messages that Contain "JDO" in the Message ID

13.29.1 JDO7000 to JDO7099

JDO7000: Cannot get policy for {0}.

Variable Information

{0}: Policy name

Explanation

{0} policy cannot be obtained.

System Action

Processing is interrupted.

User Action

Check whether the associated class path is set correctly.

JDO7001: Cannot find resource {0}.

Variable Information

{0}: System resource name

Explanation

Access was from a CMP Entity Bean to an unsupported database.

System Action

Processing is interrupted.

User Action

Change the JDBC resource referenced by the CMP Entity Bean to database that has guaranteed operation and then execute deployment again.

13.29.2 JDO71000 to JDO71099

JDO71001: The table {0} does not have a column named {1}

Variable Information

{0}: Table name
{1}: Column name

Explanation

One of the following applies:

- When the schema file was generated, a column having the name specified in the Interstage CMP Mappings deployment descriptor (sun-cmp-mappings.xml) file did not exist in the database.
- The column name specified in the Interstage CMP Mappings deployment descriptor (sun-cmp-mappings.xml) file is incorrect.

System Action

Processing is interrupted.

User Action

Check whether the schema file or the Interstage CMP Mappings deployment descriptor (sun-cmp-mappings.xml) is correct and remove the cause of the error, and then execute again.

JDO71002: The schema file {0} does not contain a table named {1}

Variable Information

{0}: Schema file name (without the extension)
{1}: Table name

Explanation

One of the following applies:

- The table name used in the -table option of the capture-schema command is not specified.
- When the schema file was generated, the table specified in the Interstage CMP Mappings deployment descriptor (sun-cmp-mappings.xml) file did not exist in the database.
- The table name specified in the Interstage CMP Mappings deployment descriptor (sun-cmp-mappings.xml) file is incorrect.

System Action

Processing is interrupted.

User Action

Check the following. If they are invalid, correct them.

- The automatic table generation feature or table mapping definition may be invalid.
- Check whether the table which is output to this message was defined in the mapping destination database, or whether it is possible to connect to that table with the JDBC resource settings that are used.
- If a database not supported in CMP Entity Bean was used, it may not be possible to obtain the connection destination database table information correctly. Check whether the database used is supported.

JDO71003: Could not find schema file {0} on classpath {1}

Variable Information

{0}: Schema file name
{1}: Classloader name

Explanation

Cannot find the schema file.

System Action

Processing is interrupted.

User Action

The schema file does not exist in the specified location. Make sure that the schema file name and content is correct, then add the corrected schema file to the application and redeploy the application.

JDO71009: The field {0} is not defined for bean {1}.

Variable Information

{0}: Field name
{1}: EJB application name

Explanation

A field having the name defined in the Interstage CMP Mappings deployment descriptor (sun-cmp-mappings.xml) file is not defined in the EJB application.

System Action

Processing is interrupted.

User Action

Check whether the field name specified in the Interstage CMP Mappings deployment descriptor (sun-cmp-mappings.xml) is correct and remove the cause of the error, then execute again.

JDO71028: The relationship field {0} in bean {1} is invalid because the field is not declared in the deployment descriptor or has already been mapped.

Variable Information

{0}: CMR field name
{1}: Bean name

Explanation

The CMR field with the name '{0}' is invalid, either because it has not been defined in the deployment descriptor or because it has already been mapped.

System Action

An exception is returned.

User Action

The CMR field name for the deployed application is invalid. Check the CMR field name definition and correct it.

JDO71030: There is no column in table {0} which can be used to support the servers implementation of unknown key classes.

Variable Information

{0}: Table name

Explanation

A column corresponding to the unknown Primary key (primary key automatic generation) does not exist in the mapped table.

System Action

Processing is interrupted.

User Action

A primary key that is not supported by the primary key automatic generation function is defined in the mapped table. Therefore, make one of the following corrections:

- If the primary key automatic generation function is used, make the primary key column of the table the NUMERIC type (precision 19 or greater).
- If the primary key automatic generation function is not used, define the EJB application primary key class and define a primary key that corresponds to the table being mapped.

JDO71035: The class corresponding to the bean {0} is null.

Variable Information

{0}: Bean name

Explanation

There is no class that matches the ejb-name defined in the deployment descriptor(DD) file.

System Action

Processing is interrupted.

User Action

The ejb-name in the deployment descriptor(DD) file might be incorrect. Check the DD ejb-name.

13.29.3 JDO71100 to JDO71199

ERROR: ISJEE_JDO71100: Failed to find a class. Verify that the class is available on your CLASSPATH

Explanation

The class search failed.

System Action

Processing is interrupted.

User Action

Check whether the class name specification and the environment variable CLASSPATH setting are correct. Remove the cause of the error and then execute again.

ERROR: ISJEE_JDO71101: Cannot access table {0}.

Variable Information

{0}: Table name

Explanation

Table {0} cannot be accessed.

System Action

Processing is interrupted.

User Action

The table name specified in the capture-schema command --table option is incorrect. Check whether the specified table name is correct and the table has been created, then specify the correct table name.

ERROR: ISJEE_JDO71102: No valid tables requested. No schema file created

Explanation

There is no valid table. A schema file was not created.

System Action

Processing is interrupted.

User Action

There might be an error in the operation of the capture-schema command. Correct the error and then execute the command again. If Oracle is used for the DBMS, the --schemaname option cannot be omitted.

ERROR: ISJEE_JDO71103: schemaname argument required for Oracle databases

Explanation

The schemaname argument has not been set, therefore connection to the Oracle database is not possible.

System Action

Processing is interrupted.

User Action

The -schemaname value might be incorrect or not specified. Enter the correct --schemaname value and then execute the command again.

WARNING: ISJEE_JDO71120: output file name changed to have filename extension.dbschema

Explanation

The .dbschema is attached to the extension of the file specified in the command -out option.

System Action

Processing is continued.

13.29.4 JDO72300 to JDO72399

JDO72310:All primary key columns in primary table {1} of class {0} must be mapped to key fields. Map the following primary key columns to key fields: {2}. If you already have fields mapped to these columns, verify that they are key fields.

Variable Information

{0}: EJB application name
{1}: Table name
{2}: DB column name

Explanation

The primary key fields must be mapped to the primary key columns. Map the primary key fields to the following columns. If these columns have already been mapped, verify the primary key field definition.

System Action

Processing is interrupted.

User Action

The CMF and DB columns defined in the primary key have not been mapped. Check whether the CMF mapping definition is valid. If the CMF mapping definition is invalid, correct the application before deploying it.

JDO72312:The field {0} is not allowed to be persistent.

Variable Information

{0}: CMP field name

Explanation

There is a field that is not allowed to be persistent.

System Action

Processing is interrupted.

User Action

Check the CMR field definition again, and correct it if necessary.

WARNING:JDO72318:The field {0} is not mapped.

Variable Information

{0}: Field name

Explanation

{0} is not mapped.

System Action

Processing is interrupted.

User Action

- When all CMFs are mapped to the DB columns
Map the field that was output to the message to the corresponding table column.
- When the CMFs which are mapped to the DB columns are selected
If deployment processing has been executed after specifying the verification option, execute deployment processing without specifying the verification option.

JDO72335:If the table {0} for the bean corresponding to the generated class {1} is mapped as the primary table,it must have a primary key.Choose a different primary table or verify that the contents of the schema file are correct.

Variable Information

{0}: Table name
{1}: Class name

Explanation

If table {0} was mapped as the primary table in class {1}, this table must have a primary key. Either select another table as the primary table, or verify that the schema file content is valid.

System Action

Processing is interrupted.

User Action

Check whether the DB columns, which are mapped to the Entity Bean fields set in the primary key, have been set in the primary key.

If the primary key fields and primary key columns have not been mapped correctly, change the Entity Bean or table definition so that the primary key fields are mapped to the primary key columns.

Note

- If the primary key is changed in Symfoware, the table must be recreated.
- For details on the method used to set the table primary key, refer to each database manual.
- If the schema used to create the table and the schema set for the user are different, it may not be possible to obtain the connection destination database table information correctly, and this message may be output. Check the database table and user schema settings.
- If a database not supported in CMP Entity Bean was used, it may not be possible to obtain the connection destination database table information correctly. Check whether the database used is supported.

JDO72338:Relationship {1} is mapped to column {0} which is not one of the mapped primary or secondary tables for the related bean corresponding to the generated class {2}.Update the table mapping or the relationship mapping.

Variable Information

{0}: Column name
{1}: CMR field name
{2}: Class name

Explanation

Relation {1} is mapped to a column of a table that is neither a primary nor a secondary table. Update the table mapping or relational mapping.

System Action

Processing is interrupted.

User Action

The table relation definition is invalid. Check the relation definition, then correct it.

JDO72340:Cannot find the column {0} for mapping the field {1} in the class {2}. Verify that the schema file exists and that its contents are correct.

Variable Information

{0}: Column name
{1}: Field name
{2}: Class name

Explanation

A column corresponding to the field name does not exist in the CMP Entity Bean schema definitions.

System Action

An exception is returned to the calling source.

User Action

Check whether the schema file or the Interstage CMP Mappings deployment descriptor (sun-cmp-mappings.xml) is correct and remove the cause of the error, then execute again.

Alternatively, the definition might not have been updated if redeployment was performed when the IJServer cluster was in the started state. Restart the IJServer cluster.

JDO72348: The type of non-static field {0} of the key class is invalid, resulting in an invalid generated key class {1}. Valid types are: String, a Number type, or a Date type. If you have a user defined primary key class, the type may also be primitive. Update the type of the key class field.

Variable Information

{0}: Field name
{1}: Primary key class name

Explanation

The key class with the field '{0}' is invalid. An invalid key class with the name '{1}' was generated. Valid key class data types are as follows: 'String type', 'Number type', and 'Date type'. If you have a user defined primary key class, the type may also be primitive. Update the primary key class field.

System Action

Processing is interrupted.

User Action

The data type of the primary key field is different from the class name of the primary key class name. Specify the data type in the <prim-key-class> element. <primkey-field> cannot be defined if you are using a user-defined primary key class. Delete this element from ejb-jar.xml.

JDO72351: This error (All key fields of the bean corresponding to the generated class {0} must be present in the key class {1}. Add the following key fields to the generated key class: generatedPKField) should not occur. Please contact support and file a bug.

Variable Information

{0}: Automatically generated class name
{1}: Automatically generated key class name

Explanation

All key fields must match the key classes generated by the container.

System Action

An exception is returned to the calling source.

User Action

The primary key class settings defined in ejb-jar.xml might be incorrect. Correct the mistake, if any, and then deploy again.

JDO72353: This error (The generated key class {0} for the bean corresponding to the generated class {1} must override the equals method from java.lang.Object) should not occur.

Variable Information

{0}: Automatically generated key class name
{1}: Automatically generated class name

Explanation

The key class generated by the container must override the equals method.

System Action

Processing is interrupted.

User Action

The primary key class equals method is not defined (override) or the definition is incorrect. Correct the error and then deploy the application again.

13.29.5 JDO73000 to JDO73099

JDO73004: Instance with Primary Key: {0} has been deleted in this transaction.

Variable Information

{0}: Primary key value

Explanation

The Entity Bean that has the primary key {0} has already been deleted from the original transaction.

System Action

An exception is returned to the calling source.

User Action

Follow the action advised in the exception information that is also output.

WARNING: ISJEE_JDO73009: Parameter instance of class '{0}' is not a valid local interface instance for bean '{1}': {2}

Variable Information

{0}: Class name

{1}: EJB application name

{2}: Exception information

Explanation

The class {0} instance is implementing an invalid local interface for the Entity Bean.

System Action

An exception is returned to the calling source.

User Action

Check whether the Entity Bean included in the deployed application is implementing a valid local interface.

JDO73011: Primary Key cannot be null.

Explanation

A primary key cannot be null.

System Action

An exception is returned.

User Action

A method was executed when the primary key contained null, but the primary key specified for the insertion or search of data columns must not contain null values.

JDO73013: Primary Key field {0} key for bean '{1}' cannot be null.

Variable Information

{0}: Primary key field name

{1}: Bean name

Explanation

The Entity Bean primary key field cannot be null.

System Action

An exception is returned.

User Action

Either a null value or no value was inserted in the primary key of the Bean. Check whether the value inserted in the primary key using the Create method or the ejbCreate method is invalid.

13.29.6 JDO74000 to JDO74099

JDO74002: Bean "{0}" method {1}: Cannot change Primary Key field value.

Variable Information

{0}: Enterprise JavaBeans name

{1}: Method name

Explanation

The primary key field value cannot be changed.

System Action

Processing is interrupted.

User Action

Check whether there is processing to change the primary key field in the application. If there is, remove that location then reexecute the deployment.

JDO74004: Bean '{0}' method {1}::{2}

Variable Information

{0}: Bean name

{1}: Method name

{2}: Error detail

Explanation

There is a problem in method {1} of Bean {0}.

System Action

Processing is interrupted.

User Action

Refer to the error details that follow this message, then correct the problem.

JDO74005: Bean '{0}' is not persistent during call to {1}.

Variable Information

{0}: EJB application name

{1}: Method name

Explanation

The EJB application {0} was not persistent while calling method {1}.

System Action

An exception is returned to the calling source.

User Action

The CMR field might be being accessed within the ejbCreate method. Change so that the CMR field is accessed by the ejbPostCreate method.

ERROR: ISJEE_JDO74006: Bean '{0}' method {1}: Cannot set Collection value to null.

Variable Information

{0}: EJB application name
{1}: Method name

Explanation

Null cannot be specified as the Collection passed to the Entity Bean {0} method {1} argument.

System Action

An exception is returned to the calling source.

User Action

Null was passed to a Collection type CMR field. Execute the Collection object remove method to remove all associated beans from Collection objects.

WARNING: ISJEE_JDO74008: Bean {0} method ejbCreate: problems during ejbCreate; parameters: :

Variable Information

{0}: Bean name

Explanation

A problem occurred in the method parameters of the ejbCreate method of Bean {0}.

System Action

An exception is returned to the calling source.

User Action

One of the ejbCreate arguments might be illegal or not have been entered. Check the ejbCreate method definition, remove the cause of the error, and then reexecute.

WARNING: ISJEE_JDO74010: Bean '{0}' method {1}: problems running JDOQL query.

Variable Information

{0}: EJB application name
{1}: Method name

Explanation

An error occurred while executing the CMP Entity Bean query method. Alternatively, if the EJB application name is TimerBean, an error occurred while executing the EJB timer service.

System Action

An exception is returned to the calling source.

User Action

Follow the action advised in the exception information that is also output.

JDO74011:Bean {0} method findByPrimaryKey: cannot find bean with key {1}

Variable Information

{0}: Bean name
{1}: Key value

Explanation

The findByPrimaryKey method cannot find the Bean.

System Action

An exception is returned to the calling source.

User Action

The primary key value entered in the findByPrimaryKey method is incorrect. Alternatively, the database might not have a column that has that key value. Check the primary key value entered in the findByPrimaryKey method and correct the value.

JDO74023: Instance with key {0} has been deleted in this transaction.

Variable Information

{0}: Primary key value

Explanation

The Entity Bean that has the primary key {0} has already been deleted from the original transaction.

System Action

An exception is returned to the calling source.

User Action

Follow the action advised in the exception information that is also output.

JDO74024: Missing or invalid definition of JDOQL query elements for CMP 1.1 finder {0}.

Variable Information

{0}: Method name

Explanation

The query parameter declaration is not defined or is incorrect.

System Action

Processing is interrupted.

User Action

For the method output in the variable information, check whether the query parameter declaration is defined correctly in the Interstage EJB application deployment descriptor (sun-ejb-jar.xml) file. Remove the cause of the error and then execute again.

JDO74025: JDOCodeGenerator: Caught an Exception validating CMP bean {0} in application {1} module '{2}'

Variable Information

{0}: Bean name
{1}: Application name
{2}: Module name

Explanation

The {0} class of the module {2} application {1} caught an exception.

System Action

An exception is returned to the calling source.

User Action

Follow the action advised in the exception information that is also output.

JDO74028: JDOCodeGenerator: Caught a Schema2BeansException loading or creating mapping for application '{0}' module '{1}':{2}

Variable Information

{0}: Application name
{1}: Module name
{2}: Detail error information

Explanation

A Schema2BeansException was caught while calling or creating mapping for module {1} application {0}.

System Action

An exception is returned to the calling source.

User Action

Refer to the error details output after this message and fix the error.

JDO74029: JDOCodeGenerator: Caught a ModelException loading or creating model for application {0} module {1} : {2}

Variable Information

{0}: Application name
{1}: Module name
{2}: Detail error information

Explanation

A ModelException was caught while calling or creating the module {1} application {0}.

System Action

An exception is returned to the calling source.

User Action

Refer to the error details output after this message and fix the error.

JDO74030: JDOCodeGenerator: Caught an IOException initializing CMP code generation for application '{0}' module '{1}': {2}.

Variable Information

{0}: Application name
{1}: Module name
{2}: Detail error message

Explanation

An IO error occurred in the initialization processing while deploying an application that includes a CMP Entity Bean.

System Action

Processing is interrupted.

User Action

Refer to the detail error message and remove the cause of the error, then execute the processing again.

JDO74033: Cannot deploy application {0} module {1} with CMP beans:{2}

Variable Information

{0}: Application name
{1}: Module name
{2}: Detail error message

Explanation

Module deployment failed.

System Action

Processing is interrupted.

User Action

Refer to the detail error message and remove the cause of the error, then execute the processing again.

JDO74034: JDOCodeGenerator: Caught a SQLException loading or creating database model for application '{0}' module '{1}': {2}

Variable Information

{0}: Application name
{1}: Module name
{2}: Error detail

Explanation

SQLException was caught while calling or creating application {0} of module {1}.

System Action

Processing is interrupted.

User Action

Refer to the error detail, remove the cause of the error, and then reexecute.

- When "This pool is not registered..." is output after this message

The JDBC resources specified in the Interstage deployment descriptor (sun-ejb-jar.xml) may not exist. Check whether the JDBC resource definition or JDBC Connection Pool definition is invalid.

JDO74035: JDOCodeGenerator: Problem while creating database model for application '{0}' module '{1}': cannot access or read schema file '{2}'.

Variable Information

{0}: Application name
{1}: Module name
{2}: Schema file name (without the extension)

Explanation

Read failed for the schema file of the module that is output in the variable information.

System Action

Processing is interrupted.

User Action

Check whether a valid schema file path was specified in the <schema> tag of the Interstage CMP Mappings deployment descriptor (sun-cmp-mappings.xml) file. As the schema file path, specify the relative path except for the top part of the ejb-jar file and the file extension (.dbschema). Use a forward slash ("/") as the path delimiter.

JDO74038: While deploying application '{0}': module '{1}' is already mapped, so none of the following deployment options will be applied to this module: --uniquetablenames, --createtables, --dropandcreatetables, --dbvendorname.

Variable Information

{0}: Application name
{1}: Module name

Explanation

The following options cannot be specified because the mapping information is already defined:

- --createtables
- --dropandcreatetables



The --uniquetablenames option and the --dbvendorname option are not supported.

System Action

Processing is continued.

User Action

Follow the procedure below:

- To use automatic table generation, delete the Interstage CMP Mappings deployment descriptor file from the deployed module and redeploy the application.
- This message can be ignored if a table was created and information mapped to it.

ERROR:JDO74040: While deploying '{0}' from {1} :sun-cmp-mappings.xml exists but is empty. Either it should have valid contents and be packaged in the module, or it should be absent (in which case database schema will be automatically generated).

Variable Information

{0}: Application name
{1}: Module name

Explanation

An error occurred while deploying module {1} application {0}. Sun-cmp-mappings.xml exists but the file is empty. Either replace the file with a valid file and incorporate it in the module correctly, or delete the file (if tables are generated automatically).

System Action

Processing is interrupted.

User Action

Nothing is coded in sun-cmp-mappings.xml. Perform one of the following operations and redeploy the application:

- If the automatic table generation function is not used:
Code mapping and schema information in the sun-cmp-mappings.xml file and store it in the EJB application.

- If the automatic table generation function is used:

Delete the sun-cmp-mappings.xml file from the application being deployed.

JDO74041: While deploying '{0}' from '{1}': sun-cmp-mappings.xml exists but has invalid contents: {2}

Variable Information

{0}: Application name
{1}: Module name
{2}: Detail error information

Explanation

An error occurred while deploying module {1} application {0}. sun-cmp-mappings.xml exists but part of the contents is invalid.

System Action

Processing is interrupted.

User Action

A sun-cmp-mappings.xml mandatory tag might not have been coded in the file. Refer to the error detail that follows this message, remove the cause of the error, and then reexecute.

If, for example, "getSchema() == null" is output in part {2} of the message, the problem is probably that the <schema> tag was not coded in sun-cmp-mappings.xml.

JDO74046: JDOCodeGenerator: Caught a MappingConversionException loading or creating mapping model for application '{0}' module '{1}': {2}

Variable Information

{0}: Application name
{1}: Module name
{2}: Detail error information

Explanation

Mapping definition read or creation failed for the module that is output in the variable information.

System Action

Processing is interrupted.

User Action

Follow the action advised in the detail error information output in the variable information and remove the cause of the error, then execute again.

13.29.7 JDO75000 to JDO75099

JDO75005: Incomplete deployment descriptor for bean {0}: Missing or empty ejb-ql element in query element for method {1}.

Variable Information

{0}: Application name
{1}: Module name

Explanation

The EJB QL for the method is not defined in the deployment descriptor file.

System Action

Deployment processing is interrupted.

User Action

Refer to the method name that is output in the variable information and check whether EJB QL definition is defined correctly.
If the method name is defined correctly, check whether the method-params tag is set correctly.

JDO75006: Invalid EJBQL query{0}

Variable Information

{0}: Error details

Explanation

The EJBQL query is invalid.

System Action

An exception is returned to the calling source.

User Action

The EJBQL definition is invalid. Refer to the error details that follow this message, then correct the problem.

13.29.8 JDO75200 to JDO75299

JDO75200: Syntax error.

Explanation

Syntax error.

System Action

Processing is interrupted.

User Action

The EJBQL definition is invalid. Refer to the error details, then correct the problem.

JDO75201: Syntax error at '{0}'.

Variable Information

{0}: Character(s)

Explanation

There is a syntax error.

System Action

Processing is interrupted.

User Action

Check the location of the character output in the message, and remove the cause of the error.

JDO75202: Syntax error unexpected token '{0}'.

Variable Information

{0}: Token

Explanation

There is an unexpected token.

System Action

Processing is interrupted.

User Action

Check the location of the token output in the message, and remove the cause of the error.

13.29.9 JDO75300 to JDO75399

JDO75305: Number expression expected, expression has type "{0}'.

Variable Information

{0}: Data type

Explanation

The {0} type was specified as the expression which expected the Number type.

System Action

Processing is interrupted.

User Action

Check whether the EJB QL or EJB 1.1 CMP Entity Bean finder method search condition definition which was specified is valid.

For details on EJB QL, refer to the EJB terms.

JDO75306: String expression expected, expression has type "{0}'.

Variable Information

{0}: Data type

Explanation

The {0} type was specified as the expression which expected the String type.

System Action

Processing is interrupted.

User Action

Check whether the EJB QL or EJB 1.1 CMP Entity Bean finder method search condition definition which was specified is valid.

For details on EJB QL, refer to the EJB terms.

JDO75307: Number or String expression expected, expression has type "{0}'.

Variable Information

{0}: Data type

Explanation

The {0} type was specified as the expression which expected the Number or String type.

System Action

Processing is interrupted.

User Action

Check whether the EJB QL or EJB 1.1 CMP Entity Bean finder method search condition definition which was specified is valid.

For details on EJB QL, refer to the EJB terms.

JDO75308: Int expression expected, expression has type "{0}".**Variable Information**

{0}: Data type

Explanation

The {0} type was specified as the expression which expected the int type.

System Action

Processing is interrupted.

User Action

Check whether the EJB QL or EJB 1.1 CMP Entity Bean finder method search condition definition which was specified is valid.

For details on EJB QL, refer to the EJB terms.

JDO75309: Double expression expected, expression has type "{0}".**Variable Information**

{0}: Data type

Explanation

The {0} type was specified as the expression which expected the Double type.

System Action

Processing is interrupted.

User Action

Check whether the EJB QL or EJB 1.1 CMP Entity Bean finder method search condition definition which was specified is valid.

For details on EJB QL, refer to the EJB terms.

JDO75311: Invalid argument(s) for '{0}'.**Variable Information**

{0}: Variable

Explanation

There is an invalid variable.

System Action

Processing is interrupted.

User Action

Check the location of the variable output in the message, and remove the cause of the error.

JDO75314: '{0}' does not denote a cmp-field or cmr-field of the entity bean for abstract schema type '{1}'.**Variable Information**

{0}: Variable

{1}: Schema name

Explanation

{0} does not denote a CMP field or CMR field of the Entity Bean for schema {1}.

System Action

Processing is interrupted.

User Action

Check the location of the variable and schema name output in the message, and remove the cause of the error.

JDO75327: result-type-mapping must not be specified for finder methods.

Explanation

result-type-mapping cannot be defined for the finder method.

System Action

Processing is interrupted.

User Action

Delete the result-type-mapping tag defined for the finder method and its definition value, then redeploy the application.

result-type-mapping is the tag which is defined for the select method. For details on the select method and result-type-mapping, refer to the EJB terms.

JDO75341: Missing field meta data for field "{0}" of "{1}"

Variable Information

{0}: CMF name

{1}: Enterprise JavaBeans name

Explanation

There is insufficient meta information for field {0} of Bean {1}.

System Action

Processing is interrupted.

User Action

Check whether the mapping definition of the field which is output to the message was defined correctly. If the mapping definition is invalid, change the definition then redeploy the application.

13.29.10 JDO76100 to JDO76199

JDO76107: The mapping for class {0} is invalid:\n{1}.

Variable Information

{0}: Internal class name

{1}: Detail information

Explanation

Mapping CMP Entity Bean with the database failed.

System Action

An exception is returned to the calling source.

User Action

Refer to the details information and remove the cause of the error.

13.29.11 JDO76200 to JDO76299

JDO76205: Failed to get field.

Explanation

Fetching the field failed.

System Action

Processing is interrupted.

User Action

There is no field information to be fetched, or it is incorrect. Look for errors in the primary key and external key (for CMR) settings and correct the settings.

JDO76207: Update of a primary key field is not allowed.

Explanation

Update of a primary key field is not allowed.

System Action

Processing is interrupted.

User Action

An attempt was made in the application to update the primary key. Delete the processing for the update of the primary key, then redeploy the application.

JDO76210: Object does not exist in the data store.

Explanation

An Entity Bean that has the specified primary key does not exist in the data store.

System Action

An exception is returned to the calling source.

User Action

Check whether the specified primary key is correct.

JDO76215: More than one row was returned for one of the tables mapped to the class {0} . Each table mapped to a class should have only one row for each instance of the object.

Variable Information

{0}: Class name

Explanation

The same primary key was detected more than once in the table mapped to the class {0}. The table mapped to the class should have only one row for each instance of the class object.

System Action

Processing is interrupted.

User Action

The primary key of the mapped DB table might be duplicated. Check the settings of the table mapped to the class and check the data, and correct them.

13.29.12 JDO76300 to JDO76399

JDO76305: The operation parameter contained an illegal value of {0}.

Variable Information

{0}: Operator

Explanation

The operator contains a value which cannot be used.

System Action

An exception is returned.

User Action

Check whether the operator which is output to the variable information is supported in the mapping database.

Check the EJB QL or EJB 1.1 CMP Entity Bean finder method search condition definition which was specified, and check whether an operator which cannot be used was defined in the mapping destination database.

If '%' is output to the variable information, check whether both of the following conditions apply:

There is mapping with Symfoware.

The EJB QL MOD function has been used.

In Symfoware, the MOD function cannot be used.

JDO76313:Error while getting value from resultset at index {0} as resultType {1}. columnSqlType {2}. Exception: {3}

Variable Information

{0}: Index

{1}: Result type

{2}: Column SQL type

Explanation

An error occurred while fetching the value from resultSet.

System Action

Processing is interrupted.

User Action

Refer to the error detail that follows this message, remove the cause of the error, and then reexecute. The table type and the mapped field type might be inconsistent. If so, change to a suitable type.

JDO76322: Third arg for POSITION clause must be 1.

Explanation

The third argument of the POSITION function must be 1.

System Action

Processing is interrupted.

User Action

Check the definition for the third argument of the EJB QL POSITION function. Either specify 1 for the third argument of the POSITION function, or do not specify anything, then redeploy the application.

For details on the POSITION function and how to define EJB QL, refer to the EJB terms.

JDO76335: SQL statement<{0}> with {1}**Variable Information**

{0}: SQL statement

{1}: When there is a parameter: A list of parameters separated by commas (",") in "input values:" When there are no parameters: "no input values."

Explanation

The issued SQL statement is displayed.

13.29.13 JDO76400 to JDO76499

JDO76400: Got a JDBC SQLException while executing the SQL statement: {0}.

Please examine the SQLException for more information.

Variable Information

{0}: SQL information

Explanation

Execution of the SQL statement corresponding to the database failed.

System Action

An exception is returned to the calling source.

User Action

Follow the action advised in the error information that is returned from the database output after this error information is output.

JDO76406: Concurrent access exception: object to {0} has been updated or deleted by another transaction.**Variable Information**

{0}: Object name

Explanation

Access is not possible because the specified object has already been updated or deleted by another transaction.

System Action

Processing is interrupted.

User Action

Update the database and then access the object again.

13.29.14 JDO76500 to JDO76599

JDO76519: Failed to identify vendor type for the data store.**Explanation**

Identification of the data source vendor type failed.

System Action

Processing is interrupted.

User Action

Connection to the DBMS is not possible. Check whether the database has been started. Check whether the settings required in order to connect to the database are correct.

JDO76520: Errors while obtaining information about the database. Got the following exception:{0}

Variable Information

{0}: Error information

Explanation

An error occurred while fetching the database information.

System Action

Processing is interrupted.

User Action

Refer to the error details output after this message and fix the error.

13.29.15 JDO76600 to JDO76699

JDO76604: JNDI lookup for cmp-resource '{0}' failed.

Variable Information

{0}: JNDI name of the JDBC resource

Explanation

One of the following applies:

- The JDBC resource JNDI name is incorrect in the CMP Entity Bean defined in the Interstage EJB application deployment descriptor (sun-ejb-jar.xml) file.
- The JDBC resource in the CMP Entity Bean defined in the Interstage EJB application deployment descriptor (sun-ejb-jar.xml) file is not defined, or the IIServer cluster is not enabled.

System Action

An exception is returned to the calling source.

User Action

Check whether the Interstage EJB application deployment descriptor (sun-ejb-jar.xml) file is correct. If the definition file is correct, check whether the JDBC resource is defined correctly.

JDO76609: Got SQLException executing statement "{0}": {1}

Variable Information

{0}: Executed SQL statement

{1}: Exception information

Explanation

java.sql.SQLException occurred while executing the SQL statement.

System Action

Execution of the SQL statement in the variable information is skipped, and processing continues.

User Action

Refer to the exception information that is returned from the database output in the variable information. Follow the procedure below:

- Reexecute the SQL statement.
- If the automatic table generation function is used, then redeploy the application.

JDO76611:Cannot connect to database via JNDI name '{0}': {1}

Variable Information

{0}: JNDI name of the resource
{1}: Error information

Explanation

Connection to the resource {0} database is not possible.

System Action

Processing is interrupted.

User Action

Refer to the error detail that follows this message, remove the cause of the error, and then reexecute. Alternatively, the JDBC resource definition might be incorrect. Check the sun-ejb-jar.xml resource definition and the resource definition of the IJServer cluster that deploys the application.

JDO76614: Deployment encountered SQL Exceptions: {0}

Variable Information

{0}: Exception information

Explanation

java.sql.SQLException was detected during deployment or undeployment.

System Action

Execution of the SQL statement is skipped, and deployment or undeployment continues.

User Action

Refer to the message output after this one, then take the action described in User Action.

An example of this message (when the deployment is performed using the asadmin command) is as follows:

```
Command deploy executed successfully with following warning messages: WARNING:
JDO76614: Deployment encountered SQL Exceptions:
    JDO76609: Got SQLException executing statement "SQL statement": Exception information
    JDO76609: Got SQLException executing statement "SQL statement": Exception information
    JDO76609: Got SQLException executing statement "SQL statement": Exception information
```



If this message is output during deployment or undeployment using the Interstage Java EE Admin Console, then the linefeed between each paragraph is not output.

13.29.16 JDO77000 to JDO77099

JDO77000:Deleted instance of class {0}

Variable Information

{0}: Class name

Explanation

The {0} class instance was deleted.

System Action

Processing is interrupted.

User Action

The table column type and the field type mapped to the table might be inconsistent. Check the table and field types and correct the errors.

JDO77006: SQL exception: state = {0}, error code = {1}.

Variable Information

{0}: SQL statement

{1}: Error code

Explanation

The issued SQL statement contains an error.

System Action

Processing is interrupted.

User Action

Refer to the SQL statement output in this message and the error code and correct the error.

13.29.17 JDO79100 to JDO79199

JDO79101: Syntax error at '{0}'

Variable Information

{0}: Character that is the cause of the error

Explanation

A syntax error occurred at {0}.

System Action

An error is returned.

User Action

Correct the part that was output to the message.

JDO79102: Syntax error unexpected token '{0}'.

Variable Information

{0}: Character that is the cause of the error

Explanation

An unexpected 'token {0}' syntax error occurred.

System Action

Processing is interrupted.

User Action

Correct the part that was output to the message.

JDO79103: Syntax error unexpected char '{0}'.

Variable Information

{0}: Character that is the cause of the error

Explanation

An unexpected 'character {0}' syntax error occurred.

System Action

Processing is interrupted.

User Action

Correct the part that was output to the message.

JDO79105: Syntax error unexpected end of text.

Explanation

A syntax error occurred at the end of the text.

System Action

An error is returned.

User Action

Correct the part that was output to the message.

13.29.18 JDO79200 to JDO79299

JDO79210:Expression of class type expected.

Explanation

This expression expected the class type.

System Action

An exception is returned to the caller.

User Action

Check whether the EJB QL or EJB 1.1 CMP Entity Bean finder method search condition definition which was specified is valid.

For details on EJB QL, refer to the EJB terms.

JDO79217:Boolean expression expected, filter expression has type "{0}".

Variable Information

{0}: Data type

Explanation

The {0} type was specified as the filter expression which expected the Boolean type.

System Action

An exception is returned to the caller.

User Action

Check whether the EJB QL or EJB 1.1 CMP Entity Bean finder method search condition definition which was specified is valid.

For details on EJB QL, refer to the EJB terms.

JDO79221: Invalid argument(s) for '{0}'.

Variable Information

{0}: Character string that is the cause of the error

Explanation

There is an invalid argument(s) for '{0}'.

System Action

An error is returned.

User Action

There might be an invalid argument(s) in the sun-ejb-jar.xml finder method implementation. Correct the part that was output to the message.

JDO79222: Invalid method call.

Explanation

An invalid method was called.

System Action

An error is returned.

User Action

An invalid method in the <query-filter> tag of the sun-ejb-jar.xml finder method definition might have been called. Correct the part that was output to the message.

JDO79225: Undefined identifier "{0}".

Variable Information

{0}: Field name

Explanation

There is an undefined identifier.

System Action

Processing continues.

User Action

Check whether the mapping definition of the CMP field which is output to the message was defined correctly. If the mapping definition is invalid, change the definition then redeploy the application.

13.29.19 JDO82000 to JDO82099

JDO82000: Exception creating logger {0}

Variable Information

{0}: Logger name

Explanation

Creation of the logger {0} failed.

System Action

Processing is interrupted.

User Action

Check whether the class path is set correctly.

13.30 Messages that Contain "JNDIMONITOR" in the Message ID

13.30.1 JNDIMONITOR000 to JNDIMONITOR099

ERROR: ISJEE_JNDIMONITOR009: Context with name [{0}] does not exist!

Variable Information

{0}: Context name

Explanation

The specified context does not exist.

System Action

Processing is interrupted.

User Action

Make sure that:

- The specified context name is correct.
- The specified target is correct.
- The intended object is loaded correctly when the server instance starts up.

13.31 Messages that Contain "JPA" in the Message ID

13.31.1 JPA0000 to JPA0099

INFO: ISJEE_JPA0010: {0} logout successful

Variable Information

{0}: Persistence unit internal ID

Explanation

Persistence unit end processing is being performed.

INFO: ISJEE_JPA0011: TopLink, version: {0}

Variable Information

{0}: Interstage persistence provider internal information

Explanation

The Interstage persistence provider was initialized.

INFO: ISJEE_JPA0013: {0} login successful

Variable Information

{0}: Persistence unit internal ID

Explanation

Persistence unit initialization is being performed.

WARNING: ISJEE_JPA0020: caught throwable.

Explanation

Refer to the exception stack trace format under "Exception information starting with oracle.toplink.essentials".

INFO: ISJEE_JPA0021: SQL statement={0}

Variable Information

{0}: SQL statement.

If a dynamic parameter is specified, the dynamic parameter value (if a class instance, the toString() method return value) is output after "bind=>" and separated by a comma.

Explanation

The Interstage persistence provider will issue the SQL statement shown in the variable information to the database.

ERROR: ISJEE_JPA0022: caught throwable.

Explanation

Refer to the exception stack trace format under "Exception information starting with oracle.toplink.essentials".

13.32 Messages that Contain "JSF" in the Message ID

13.32.1 JSF1000 to JSF1099

If a JSF1000 message is output, then it means the JSF settings or application configuration might be incorrect. Make sure that the JSF settings and application configuration are correct.

13.33 Messages that Contain "JTS" in the Message ID

13.33.1 JTS5000 to JTS5099

ERROR: ISJEE_JTS5001: Cannot create control object reference.

Explanation

An error occurred while starting the transaction service.

System Action

Processing is interrupted.

User Action

Use the iscollectinfo command to collect investigation information, and then contact your service engineer.

WARNING: ISJEE_JTS5003: Cannot destroy [{0}] object reference.

Variable Information

{0}: Internal information

Explanation

Object reference deletion failed.

System Action

Processing is continued.

User Action

Check the error information output immediately prior to this message.

ERROR: ISJEE_JTS5005: Wait for resync complete interrupted

Explanation

An interruption occurred during transaction recovery processing.

System Action

Processing is interrupted.

User Action

Follow the action advised in the exception information that is output immediately after this message, and remove the cause of the error.

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: ISJEE_JTS5008: Cannot open log file for server = [{0}].

Variable Information

{0}: Server instance name

Explanation

Transaction log access failed.

System Action

Processing is interrupted.

User Action

Revise the transaction log settings. Check whether the transaction log directory exists, and whether access to the directory is permitted.

ERROR: ISJEE_JTS5009: Cannot create CoordinatorResource object reference

Explanation

Object reference creation failed.

System Action

An exception is returned.

User Action

Restart the IJServer cluster, and then execute the application again.

INFO: ISJEE_JTS5014: Recoverable JTS instance, serverId = [{0}]

Variable Information

{0}: Port number

Explanation

Access to the port number in the variable information and recovery of the JTS instance is possible.

System Action

Processing is continued.

WARNING: ISJEE_JTS5015: Unexpected error occurred when creating portable object adaptors

Explanation

An unexpected error occurred while creating the POA.

System Action

Processing is interrupted.

User Action

Use the iscollectinfo command to collect investigation information, and then contact your service engineer.

WARNING: ISJEE_JTS5020: Invalid log path. Using [{0}].

Variable Information

{0}: Transaction log directory

Explanation

The transaction log directory is changed to the location at {0} because the specified one does not exist.

If {0} is displayed as an absolute path, the current directory is the current directory of the server instance Java VM process.

System Action

Processing is continued.

User Action

Check whether the specified transaction log directory exists.

WARNING: ISJEE_JTS5021: Invalid default log path. Using current directory.

Explanation

The transaction log directory is changed to the current directory of the server instance Java VM process because the directory to which JTS5020 changed cannot be used.

System Action

Processing is continued.

User Action

Check whether the specified transaction log directory exists.

ERROR: ISJEE_JTS5022: Unexpected exception [{0}] from log.

Variable Information

{0}: Exception information

Explanation

An error occurred during access to the transaction log file.

System Action

If this error occurred during server instance startup, transaction recovery is subsequently performed.

If it occurred during application execution, write processing to the transaction log fails and an exception is returned.

User Action

Follow the action advised in the error information output prior to this message and the exception information output at {0} and remove the cause of the error.

WARNING: ISJEE_JTS5028: XAException occurred during recovery of XAResource objects.

Explanation

An javax.transaction.xa.XAException occurred during XAResource recovery.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information that is output immediately after this message and remove the cause of the error.



Depending on the database, it might be necessary to assign management table SELECT and EXECUTE privileges to the runtime user in advance in order to execute the XAResource recover method. For details, refer to "Software Requirements" > "1.1.3 Database", and the database manual.

WARNING: ISJEE_JTS5029: Exception [{0}] on [{1}] operation during resync.

Variable Information

{0}: Exception information
{1}: Process name

Explanation

An error occurred during transaction recovery processing.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information output prior to this message and remove the cause of the error.

ERROR: ISJEE_JTS5031: Exception [{0}] on Resource [{1}] operation.

Variable Information

{0}: Exception information
{1}: Operation name

Explanation

An exception occurred during execution of the operation shown as the operation name.

System Action

An exception is returned to the calling source.

User Action

Follow the action advised in the exception information and remove the cause of the error.

ERROR: ISJEE_JTS5032: Retry limit of [{0}] [{1}] operations exceeded.

Variable Information

{0}: Retry count
{1}: Operation name

Explanation

The operation could not be completed within the retry count limit.

System Action

The retry is interrupted and an exception is returned to the calling source.

User Action

Check whether the connection destination IJServer is in the started state. Alternatively, increase the retry timeout value.

WARNING: ISJEE_JTS5038: Transaction resynchronization from originator failed, retrying....

Explanation

An error occurred while synchronizing information with the transaction start process.

System Action

If within the retry limit, retry occurs after a fixed period.

If the retry limit is exceeded, the transaction is completed in accordance with the value set for Heuristic Decision.

User Action

Follow the action advised in the exception information output prior to this message and remove the cause of the error.

ERROR: ISJEE_JTS5040: Cannot create TransactionFactory object reference.

Explanation

An error occurred while creating the TransactionFactory.

System Action

Processing is interrupted.

User Action

Use the iscollectinfo command to collect investigation information, and then contact your service engineer.

WARNING: ISJEE_JTS5041: The resource manager is doing work outside a global transaction

Explanation

The resource manager is operating outside a global transaction.

System Action

An exception is returned to the calling source.

User Action

The method of using the connection pool might be incorrect. Check the following:

- The same connection pool is used from inside and outside the transaction.
- More than one connection pool is created and used with the same definitions.
- The same connection is used from outside the transaction without closing the connection.

WARNING: ISJEE_JTS5064: Unexpected exception occurred while delisting the resource

Explanation

An unexpected exception occurred when the resource was deleted from the transaction.

System Action

Rollback is set for the transaction.

User Action

Follow the action advised in the exception information output prior to this message and remove the cause of the error, then execute again.

WARNING: ISJEE_JTS5065: An IO Exception occurred while handling recovery file

Explanation

An exception occurred while accessing the transaction log.

System Action

If this message is output during start processing for the Interstage Java EE DAS service or the server instance, processing is continued.

If this message is output during transaction recovery processing executed from the Interstage Java EE management console or a Java EE operation command, recovery processing is interrupted.

User Action

Follow the action advised in the exception information that is output immediately after this message and remove the cause of the error.

Check whether the path setting is correct for the transaction log directory.

Check the access permission for the transaction log directory.

If the transaction log directory used for transaction recovery processing is specified as an absolute path, the current directory is the current directory of the server instance Java VM process that executes the transaction recovery processing.

ERROR: ISJEE_JTS5066: Unexpected error occurred in recovery process. Possible cause is that transaction logs are corrupted. Please clean up the transaction-service.tx-log-dir/tx/* files and restart the server.

Explanation

An unexpected error occurred for transaction service recovery processing.

System Action

Processing is continued.

User Action

Check the output destination of the transaction logs. Delete the tx directory files and then restart the IJServer cluster.

WARNING: ISJEE_JTS5067: Unexpected error occurred in commit

Explanation

An unexpected error occurred during transaction commit.

System Action

An exception is returned to the calling source.

User Action

Follow the action advised in the exception information output immediately after this message and remove the cause of the error, then execute again.

If required, check whether transaction commit succeeded, and perform status recovery.

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

WARNING: ISJEE_JTS5068: Unexpected error occurred in rollback**Explanation**

An unexpected error occurred during rollback processing.

System Action

An exception is returned.

User Action

Follow the action advised in the exception information output before and after this message and remove the cause of the error.

ERROR: ISJEE_JTS5069: An XAException occurred in two phase commit.**Explanation**

An error occurred when the commit request was executed for the resources in two phases.

System Action

An exception is returned.

User Action

Follow the action advised in the exception information that is output before and after this message to remove the cause of the error described in the Resource Manager (database) manuals.

ERROR: ISJEE_JTS5070: An XAException occurred in one phase commit.**Explanation**

An error occurred when the commit request was executed for the resources in one phase.

System Action

An exception is returned.

User Action

Follow the action advised in the exception information that is output before and after this message to remove the cause of the error described in the Resource Manager (database) manuals.

ERROR: ISJEE_JTS5071: An XAException occurred in forget.**Explanation**

An error occurred when the forget method was executed for the resources.

System Action

An exception is returned.

User Action

Follow the action advised in the exception information that is output before and after this message to remove the cause of the error described in the Resource Manager (database) manuals.

ERROR: ISJEE_JTS5072: An XAException occurred in rollback.**Explanation**

An error occurred when the rollback request was executed for the resources.

System Action

An exception is returned.

User Action

Follow the action advised in the exception information that is output before and after this message to remove the cause of the error described in the Resource Manager (database) manuals.

ERROR: ISJEE_JTS5073: An XAException occurred in prepare.

Explanation

An error occurred when the prepare method was executed for the resources.

System Action

An exception is returned.

User Action

Follow the action advised in the exception information that is output before and after this message to remove the cause of the error described in the Resource Manager (database) manuals.

ERROR: ISJEE_JTS5074: An XAException occurred in rollbacking or ending a resource.

Explanation

An error occurred when the rollback or end method was executed for the resources.

System Action

An exception is returned.

User Action

Follow the action advised in the exception information that is output before and after this message to remove the cause of the error described in the resource manuals.

ERROR: ISJEE_JTS5075: Local transaction already has multiple non-XA Resource: cannot add XA Resource.

Explanation

The local transaction already contains multiple non-XA resources. Further XA resources cannot be added.

System Action

An exception is returned.

User Action

Check to determine whether one of the following applies, follow the action advised to remove the cause of the error then reexecute processing.

- Check whether the resources used in the application program are valid.
- Check whether the resource type (XA resources/non-XA resources) for the resources used is valid.

ERROR: JTS5076: Global transaction already has 1 non-XA Resource: cannot add more non-XA resources.

Explanation

The global transaction already contains one non-XA resources. Further non-XA resources cannot be added.

System Action

An exception is returned.

User Action

Check to determine whether one of the following applies, follow the action advised to remove the cause of the error then reexecute processing.

- Check whether the resources used in the application program are valid.
- Check whether the resource type (XA resources/non-XA resources) for the resources used is valid.

WARNING: ISJEE_JTS5077: {0} while {1} non-XA Resource: {2}

Variable Information

{0}: Error type ("Exception" or "Error")
{1}: Operation name ("commit" or "rollback")
{2}: Non-XA resource JNDI name

Explanation

An error occurred when commit or rollback was executed for the non-XA resources.

System Action

Processing continues.

User Action

Follow the action advised in the exception information that is output before and after this message to remove the cause of the error described in the resource manuals.

13.33.2 JTS6000 to JTS6099

ERROR: ISJEE_JTS6008: Exception occurred while accessing JDBC resource for transaction log.

Explanation

Access to the JDBC resource used by the transaction log failed.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information that is output immediately below this message and remove the cause of the error.

ERROR: ISJEE_JTS6009: Exception occurred while obtaining JDBC resource [{0}] for transaction log.

Variable Information

{0}: JNDI name of the JDBC resource

Explanation

Acquisition of the JDBC resource used by the transaction log failed.

System Action

Processing is continued.

User Action

Check whether the correct JDBC resource name is specified in the transaction service additional property db-logging-resource.

13.34 Messages that Contain "JXTAX" in the Message ID

13.34.1 JXTAX0000 to JXTAX0099

WARNING: ISJEE_JXTAX0001: Invalid address for local interface address, using default

Explanation

The default settings are enabled because the specified address for the group management service is incorrect.

System Action

Processing is continued.

User Action

Check whether the heartbeat address setting or the heartbeat port setting in the IJServer cluster settings is correct.

INFO: ISJEE_JXTAX0002: IP Multicast Message Transport disabled.

Explanation

The group management service multicast control is disabled.

System Action

Processing is continued.

WARNING: ISJEE_JXTAX0003: Stalled until there is an endpoint service

Explanation

The group management service endpoint is disabled.

System Action

Processing is continued.

User Action

Follow the action advised in the error message output after this message

ERROR: ISJEE_JXTAX0004: Transport registration refused

Explanation

The group management service message transport is disabled.

System Action

Processing is continued.

User Action

Check whether a memory shortage has occurred.

ERROR: ISJEE_JXTAX0005: Could not join multicast group, setting Multicast off

Explanation

Participation in the multicast group of the group management service failed. Multicast transfer is not possible.

If this error occurs, information might not be passed to some server instances because the UDP corresponding to 127.0.0.1 performs the message sending.

System Action

Processing is continued.

User Action

Check whether the heartbeat address setting or the heartbeat port setting in the IIServer cluster settings is correct.

INFO: ISJEE_JXTAX0006: IP Multicast Message Transport started.

Explanation

Message control has started for the group management service IP multicast.

System Action

Processing is continued.

ERROR: ISJEE_JXTAX0007: failure during multicast receive

Explanation

Response reception from the group management service multicast failed.

System Action

Processing is continued.

User Action

Check the following:

- If the network load is high and network communication failed.
 - If there is a memory shortage.
-

ERROR: ISJEE_JXTAX0008: Uncaught Throwable in thread :{0}

Variable Information

{0}: Thread name

Explanation

An unexpected exception occurred for the group management service multicast control.

System Action

Processing is continued.

User Action

Check whether a memory shortage has occurred.

WARNING: ISJEE_JXTAX0009: Multicast datagram exceeds multicast size.

Explanation

Usable data size was exceeded in the group management service multicast control.

System Action

Processing is continued.

User Action

Check the following:

- If the network load is high and network communication failed.
 - If there is a memory shortage.
-

WARNING: ISJEE_JXTAX0010: Multicast socket send failed

Explanation

Message send to the group management service multicast failed.

System Action

Processing is continued.

User Action

Check the following:

- If the network load is high and network communication failed.
- If there is a memory shortage?

ERROR: ISJEE_JXTAX0011: Uncaught Throwable

Explanation

An unexpected exception occurred for the multicast control of the group management service.

System Action

Processing is continued.

User Action

Check whether a memory shortage has occurred.

13.35 Messages that Contain "LAUNCHER" in the Message ID

13.35.1 LAUNCHER000 to LAUNCHER099

WARNING: ISJEE_LAUNCHER004:The log file {0} can't be created and/or written to.

Variable Information

{0}: Server log file

Explanation

Failed to create and output the server log file.

System Action

The IIServer cluster start processing is interrupted.

User Action

Take the following action.

- Make sure that write privileges were assigned for the file.
- Make sure that write privileges were assigned for the log or parent directories.
- Make sure that the log directory settings are valid.
- Make sure that the length of the log file path has not exceeded the maximum length allowed by the OS.
- Make sure that the disk is not corrupt, therefore disabling access to the file or directory.
- A conflict with other processing might have made access to the disk temporarily unavailable. If that is the case, then reexecute.
- If there is not enough free disk space, then secure more.
- Check whether the service operator user was changed - if it was, then make sure that write privileges were assigned for the log or parent directories.

13.36 Messages that Contain "LCM" in the Message ID

13.36.1 LCM0100 to LCM0199

WARNING: ISJEE_LCM0101: Exception loading lifecycle module [{0}]; [{1}]

Variable Information

{0}: Lifecycle module name
{1}: Exception information

Explanation

Failed to load the lifecycle module.

System Action

IJServer cluster start processing is continued.

User Action

Take the following action.

- Set the lifecycle module class in the classpath.
- Check that the lifecycle module class name is correct. If it is not, correct it.
 - Is the spelling correct?
 - Was the package name qualified correctly?
- Check that the lifecycle module class has implemented the class shown below. If it has not, implement it.
 - com.sun.appserv.server.LifecycleListener
- Refer to the exception information in variable information {1}, and remove the cause of the error.

13.36.2 LCM0200 to LCM0299

WARNING: ISJEE_LCM0201: Lifecycle module [{0}] threw an Exception; please check your lifecycle module.

Variable Information

{0}: Lifecycle module name

Explanation

The handleEvent method threw an exception.

System Action

IJServer cluster start processing is continued.

User Action

Check that the lifecycle module class implementation is correct. If it is not, correct it.

WARNING: ISJEE_LCM0203: Lifecycle module [{0}] threw ServerLifecycleException

Variable Information

{0}: Lifecycle module name

Explanation

The handleEvent method threw ServerLifecycleException.

System Action

IJServer cluster start processing is continued.

User Action

Check that the lifecycle module class implementation is correct. If it is not, correct it.

13.37 Messages that Contain "LDR" in the Message ID

13.37.1 LDR5000 to LDR5099

ERROR: ISJEE_LDR5003: Duplicate unique id [{0}] found in ejb descriptor [{1}].

Variable Information

{0}: ID that was specified

{1}: EJB application name

Explanation

The unique-id tag value specified in the Interstage deployment descriptor file was duplicated.

System Action

The application loading is stopped, and IJServer cluster start processing is continued.

User Action

Change the unique-id tag value specified in the Interstage deployment descriptor file, and then redeploy the module. For details on the valid values, refer to "unique-id" in "3.2.3.7 Tag and Description of the Interstage Deployment Descriptor".

ERROR: ISJEE_LDR5004: Unexpected error occurred while creating ejb container

Explanation

An error occurred when the EJB container started.

System Action

The loading of the application in which the error occurred is stopped, and EJB container start processing is continued.

User Action

Refer to the exception information and other messages that were output, remove the cause of the error and then reexecute.

If java.lang.ClassNotFoundException was output at the same time, take the following action:

- Make sure that the classes listed are contained in the application.
- Make sure that the classpath setting for the module in which the listed classes are contained are valid.
- If the classpath is set while the IJServer cluster (or Interstage Java EE DAS service) is running, then it must be restarted.
- If javax.ejb.EJBException was output at the same time, then check whether Stateful Session Bean is running as the EJB Timer Service (Stateful Session Bean cannot run as the EJB Timer Service).

If none of the above applies, then refer to the exception information and other messages output, remove the cause of the error and reexecute.

WARNING: ISJEE_LDR5005: ApplicationLoader exception

Explanation

Failed to load the application.

System Action

Processing is continued.

User Action

Refer to the exception information and other messages that were output, remove the cause of the error and then reexecute.

ERROR: ISJEE_LDR5006: Failed to load deployment descriptor

Explanation

Failed to load the application.

System Action

The application loading is stopped, and IJServer cluster start processing is continued.

User Action

The application path is output to the stack trace that is output before and after.

- Check whether there are resources in the application path. If there are not, redeploy the application.
 - Check the application path access privileges. If they are inappropriate, set appropriate access privileges.
-

ERROR: ISJEE_LDR5008: ConfigException

Explanation

Failed to load the application.

System Action

The application loading is stopped, and IJServer cluster start processing is continued.

User Action

The application path is output to the stack trace that is output before and after.

- Check whether there are resources in the application path. If there are not, redeploy the application.
 - Check the application path access privileges. If they are inappropriate, set appropriate access privileges.
-

INFO: ISJEE_LDR5010: All ejb(s) of [{0}] loaded successfully!

Variable Information

{0}: Application name

Explanation

The application loaded successfully.

ERROR: ISJEE_LDR5012: Jndi name conflict found in [{0}]. Jndi name [{1}] for bean [{2}] is already in use.

Variable Information

{0}: Application name

{1}: JNDI name

{2}: Enterprise JavaBean name

Explanation

JNDI name {1} that is shown in application {0} was already defined in Enterprise JavaBean {2}.

System Action

The loading of the application in which the error occurred is stopped, and EJB container start processing is continued.

User Action

Change the JNDI name, and then redeploy. If the problem is not solved, restart the IJServer cluster.

ERROR: ISJEE_LDR5013: Naming exception while creating EJB container:

Explanation

An exception was caused by the JNDI name when the EJB container started.

System Action

The loading of the application in which the error occurred is stopped, and EJB container start processing is continued.

User Action

Refer to the error information that was output before this error and take action.

WARNING: ISJEE_LDR5015: Exception

Explanation

An exception occurred.

System Action

Processing is continued.

User Action

Refer to the exception information and other messages that were output, remove the cause of the error and then reexecute.

WARNING: ISJEE_LDR5019: For module ServletTest the module directory {0} is missing or invalid

Variable Information

{0}: Path of application

Explanation

The application path is illegal, or contains no resources.

System Action

The application loading is stopped, and IJServer cluster start processing is continued.

User Action

Refer to the error message that was output before this message.

WARNING: ISJEE_LDR5020: Unexpected error while unregistering ejb mbean

Explanation

An error occurred when the EJB monitor information object was de-registered.

System Action

Processing is continued.

User Action

Make sure that the EJB application name does not contain colons (':').

If the problem is not resolved, then use the iscollectinfo command to collect troubleshooting information, and send it to a Systems Engineer.

ERROR: ISJEE_LDR5050: ERROR while loading application {0}

Variable Information

{0}: Application name

Explanation

Failed to load the application.

System Action

The application loading is stopped, and IJServer cluster start processing is continued.

User Action

Refer to the error message that was output after this message.

ERROR: ISJEE_LDR5060: Failed to load persistence entities.

Explanation

Failed to load the application Entity.

System Action

The loading of Entity is cancelled, and processing continues.

User Action

Follow the action advised in the exception information and other message or messages that were output to remove the cause of the error.

13.37.2 LDR5200 to LDR5299

ERROR: ISJEE_LDR5200:MalformedURLException.

Explanation

An exception occurred while registering the resources in the Application class loader.

System Action

The application loading is stopped, and IJServer cluster start processing is continued.

User Action

Refer to the LDR5203 that was also output and fix the error.

ERROR: ISJEE_LDR5203: An error occurred while adding URL [{0}] to the EJB class loader. Please check the content of this URL.

Variable Information

{0}: URL of the resources for which the addition failed

Explanation

Failed to register the resources in the Application class loader.

System Action

The application loading is stopped, and IJServer cluster start processing is continued.

User Action

The resources shown in the variable information might be corrupt. Check that there are no problems in the resources shown in the variable information.

WARNING: ISJEE_LDR5207: EJBClassLoader {1} was requested to find class {0} after done was invoked from the following stack trace

Variable Information

{0}: Name of the class that you tried to load
{1}: Class loader status

Explanation

The class could not be loaded because its loader was not running.

System Action

The class loading is stopped.

User Action

Check the status of the server instance.

13.37.3 LDR5300 to LDR5399

ERROR: ISJEE_LDR5300: Failed to load the rar.

Explanation

Failed to load the rar module.

System Action

Processing is continued.

User Action

Refer to the exception message output immediately before or after this message, remove the cause of the error and then reexecute.

13.38 Messages that Contain "MDB" in the Message ID

13.38.1 MDB00000 to MDB00099

ERROR: ISJEE_MDB00017: [{0}]: Exception in creating message-driven bean container: [{1}]

Variable Information

{0}: EJB application name
{1}: Cause of the error

Explanation

An exception occurred during processing to generate the Message-driven Bean.

System Action

Processing to generate this EJB application continues.

User Action

Refer to the exception information returned by the EJB application that was output to the server log and take action.

Take the following action:

- Check that the resources connected by the Message-driven Bean were defined correctly.
- If the 'java.lang.Exception: Resource Adapter selected doesn't support Inbound' character string was output to the exception information, check that the resource adapter class was specified in the <resourceadapter- class> tag of the deployed connector module ra.xml.

- If "com.sun.enterprise.connectors.ConnectorRuntimeException: Could not find physical destination : null" was output to the exception information, then it means that the JMS send destination resources (or connector-managed object resources) Name property was not set. To run the Message-driven Bean, an appropriate value must be specified for the Name property.

ERROR: ISJEE_MDB00037: [{0}:{1}]: Message-driven bean invocation exception: [{2}]**Variable Information**

{0}: Application name
{1}: EJB application name
{2}: Exception information

Explanation

An exception occurred during processing to receive Message-driven Bean messages.

System Action

Processing is interrupted.

User Action

Refer to the error information that was output immediately after this message and take action.

ERROR: ISJEE_MDB00042: [{0}:{1}]: No invocation for message []**Variable Information**

{0}: Application name
{1}: EJB application name

Explanation

The Message-driven Bean does not exist.

System Action

Message-driven Bean processing is not performed.

User Action

An error occurred in the EJB application, therefore the instance might not exist.

Refer to the error information that was output to the server log and take action.

ERROR: ISJEE_MDB00048: Message-driven bean [{0}:{1}]: Exception in preinvoke : [{2}]**Variable Information**

{0}: Application name
{1}: EJB application name
{2}: Error information

Explanation

An error occurred during preprocessing for processing to receive Message-driven Bean messages.

System Action

Processing is interrupted.

User Action

Refer to the error information that was output immediately after this message and take action.

ERROR: ISJEE_MDB00050: Message-driven bean [{0}:{1}] Exception in creating message-driven ejb : [{2}]

Variable Information

{0}: Application name
{1}: EJB application name
{2}: Error information

Explanation

An error occurred during processing to generate the Message-driven Bean.

System Action

Processing is interrupted.

User Action

Refer to the error information and take action. Take the following action:

- If NamingException occurs, check that the resources connected by the Message-driven Bean were defined correctly.
- If ClassNotFoundException occurs, check that all the classes used in the Message-driven Bean can be used.

ERROR: ISJEE_MDB00051: Message-driven bean [{0}:{1}] preinvoke exception in destroy message-driven ejb: [{2}]

Variable Information

{0} :Application name
{1}: EJB application name
{2}: Error information

Explanation

An error occurred during processing to delete the Message-driven Bean.

System Action

Processing is continued.

User Action

A system exception might have occurred in the ejbRemove method.

Refer to the error information that was output immediately after this message and take action.

ERROR: ISJEE_MDB00052: Message-driven bean [{0}:{1}]: start message delivery exception: [{2}]

Variable Information

{0}: Application name
{1}: EJB application name
{2}: Error information

Explanation

An error occurred during processing to start receiving Message-driven Bean messages.

System Action

Processing is interrupted.

User Action

Refer to the error information that was output immediately after this message and take action.

ERROR: ISJEE_MDB00053: Message-driven bean [{0}:{1}] container cleanup exception: [{2}]

Variable Information

{0}: Application name
{1}: EJB application name
{2}: Error information

Explanation

An exception occurred during processing to delete the Message-driven Bean.

System Action

Processing is interrupted.

User Action

Refer to the error information and take action.

WARNING: ISJEE_MDB00060: [{0}]: Invalid value [{1}] for [{2}] , use [{3}] instead

Variable Information

{0}: Application name
{1}: Value that was set
{2}: Item name
{3}: Corrected value

Explanation

An invalid value ({1}) was set for {2}, therefore {3} is set instead.

System Action

A corrected value ({3}) is set instead of value {1}.

User Action

Refer to "Enterprise Bean Instance Pooling" in the "Java EE Function Tuning" chapter, and take action if necessary.

13.38.2 MDB00100 to MDB001099

WARNING: ISJEE_MDB00103: [MDBContainer] ASync task has not finished. Giving up after {0} seconds.

Variable Information

{0}: Connector service shutdown timeout value

Explanation

The resource adapter endpointDeactivation method that was executed during processing to delete the Message-driven Bean did not return within the specified time.

System Action

Processing is continued.

User Action

Check the server log, and if an error log was output refer to the error information and take action.

Alternatively, measure the resource adapter endpointDeactivation method time and set an appropriate value for the connector service shutdown timeout.

13.39 Messages that Contain "METHODLOG" in the Message ID

13.39.1 METHODLOG0000 to METHODLOG0099

METHODLOG0001: {0}: {1} {2} {3}

Variable Information

- {0}: ENTRY, or CLIENT ENTRY
- {1}: Application name, or javax.transaction.TransactionManager
- {2}: EJB name
- {3}: Interface name.method name, or class name.method name, or method name

Explanation

This message is output by the EJB/JTA method log feature.

For messages which are output to the EJB method log, the "EJB_" prefix is added to the message ID.

For messages which are output to the JTA method log, the "JTA_" prefix is added to the message ID and variable information {2} is not output.

METHODLOG0002: {0}: {1} {2} {3}

Variable Information

- {0}: RETURN, or CLIENT RETURN
- {1}: Application name, or javax.transaction.TransactionManager
- {2}: EJB name
- {3}: Interface name.method name, or class name.method name, or method name

Explanation

This message is output by the EJB/JTA method log feature.

For messages which are output to the EJB method log, the "EJB_" prefix is added to the message ID.

For messages which are output to the JTA method log, the "JTA_" prefix is added to the message ID and variable information {2} is not output.

METHODLOG0003: {0}: {1} {2} {3} {4}

Variable Information

- {0}: THROW, or CLIENT THROW
- {1}: Application name, or javax.transaction.TransactionManager
- {2}: EJB name
- {3}: Interface name.method name, or class name.method name, or method name
- {4}: Exception class name

Explanation

This message is output by the EJB/JTA method log feature.

If the exception which occurred contains a detail string, it is output after the exception class name.

For messages which are output to the EJB method log, the "EJB_" prefix is added to the message ID.

For messages which are output to the JTA method log, the "JTA_" prefix is added to the message ID and variable information {2} is not output.

13.40 Messages that Contain "MIMEPULL" in the Message ID

13.40.1 MIMEPULL0000 to MIMEPULL0099

MIMEPULL0001: Failed to delete temporary file. file={0}

Variable Information

{0}: File name

Explanation

Could not delete the temporary file.

System Action

Processing is continued.

User Action

If the file shown in the variable information remains, delete it. If it cannot be deleted, exit the IJServer cluster or application client and then delete it again.

MIMEPULL0002: Failed to create temporary file. directory={0}

Variable Information

{0}: Directory in which you tried to create the temporary file

Explanation

Could not create the temporary file.

System Action

Processing is continued.

User Action

Check that the directory shown in the variable information exists and that there are write privileges, and then reexecute.

13.41 Messages that Contain "ML" in the Message ID

13.41.1 ML1000 to ML1099

WARNING: ISJEE_ML1009: Cannot get the monitoring information. MONITOR ITEM={0}

Variable Information

{0}: Collection target

Explanation

The collection target resource does not exist, therefore the performance information cannot be obtained.

System Action

The performance information for the collection target {0} will not be output.

User Action

To output the performance information, create the collection target resource. For details on the performance information output criteria, refer to "Analyzing the Log File" in the "Java EE Function Tuning" chapter.

WARNING: ISJEE_ML1010: All the module monitoring levels are OFF. The monitoring information cannot be acquired.

Explanation

All monitoring levels have been set to OFF, therefore the performance information cannot be obtained.

System Action

Only the JavaVM performance information will be output.

User Action

To obtain performance information other than that for the JavaVM, set the monitoring level for the required collection target to HIGH or LOW. For details on the monitoring level settings, refer to "[7.8.14 Monitoring Service Definition Items](#)" in the "List of Definition Items" chapter.

13.42 Messages that Contain "MQJMSRA" in the Message ID

13.42.1 MQJMSRA_1000 to MQJMSRA_1099

MQJMSRA_1001: Using MQ RA for Broker lifecycle control

Explanation

The 'jmsra' resource adapter will be used.

System Action

Processing is continued.

13.42.2 MQJMSRA_AS4000 to MQJMSRA_AS4099

WARNING: ISJEE_MQJMSRA_AS4001: {0}

Variable Information

{0}: WARNING information

Explanation

The exception shown in variable information {0} occurred.

System Action

Processing is continued.

User Action

Refer to [Detail Information (Warning)] below, and then remove the cause of the WARNING information for variable information {0} if necessary.

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

[Detail Information (Warning)]

WARNING information of variable information {0}	Variable information of WARNING information	Action
setDestinationType:Invalid destinationType={1}	{1}:resource type for the JMS send destination resource	The specified resource type in variable information {1} is incorrect. Check whether the resource type for the JMS send destination resource that was specified is correct.

13.42.3 MQJMSRA_CL1100 to MQJMSRA_CL1199

INFO: ISJEE_MQJMSRA_CL1101: onEvent:{0}

Variable Information

{0}: Cause of the error

Explanation

An event occurred in internal broker processing.

System Action

Processing is continued.

13.42.4 MQJMSRA_CL2000 to MQJMSRA_CL2099

WARNING: ISJEE_MQJMSRA_CL2001: {0}

Variable Information

{0}: Cause of the error

Explanation

An event occurred in internal broker processing.

System Action

Processing is continued.

User Action

- For onException

If you want to process this Exception in a user application, implement ExceptionListener.

13.42.5 MQJMSRA_DC2000 to MQJMSRA_DC2099

WARNING: ISJEE_MQJMSRA_DC2001: {0}

Variable Information

{0}: Cause of the error

Explanation

An internal conflict occurred in the broker.

System Action

Processing is continued.

User Action

Check the application.

One of the following problems might have occurred.

- null or a space character was specified in setClientID.
- ClientID was set before setClientID.

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

13.42.6 MQJMSRA_DMP4000 to MQJMSRA_DMP4099

ERROR: ISJEE_MQJMSRA_DMP4001: {0}**Variable Information**

{0}: Cause of the error

Explanation

One of the following problems might have occurred.

- You tried to call the JMS API method, but the JMS object was already closed.
- You specified an illegal parameter in the JMS API method and tried to call it.

System Action

Processing is interrupted.

User Action

Based on the message that was output to the cause of the error in the variable information, remove the cause of the error and then reexecute processing.

13.42.7 MQJMSRA_DP4000 to MQJMSRA_DP4099

ERROR: ISJEE_MQJMSRA_DP4001: {0}**Variable Information**

{0}: Cause of the error

Explanation

One of the following problems might have occurred.

- You tried to call the JMS API method, but the JMS object was already closed.
- You tried to call a JMS API method that cannot be used.

System Action

Processing is interrupted.

User Action

Check the application.

- A JMS API method that has already been closed cannot be called.
- A MessageConsumer that was created in the Queue object cannot call the following methods:
 - getTopic()
 - getNoLocal()
- A MessageConsumer that was created in the Topic object cannot call the following methods:
 - getQueue()

13.42.8 MQJMSRA_EB1100 to MQJMSRA_EB1199

INFO: ISJEE_MQJMSRA_EB1101: EMBEDDED broker started with code ={0}**Variable Information**

{0}: Internal code

Explanation

The message service EMBEDDED broker was started.

13.42.9 MQJMSRA_EC1100 to MQJMSRA_EC1199

INFO: ISJEE_MQJMSRA_EC1101: onEvent:Connection Event: {0}

Variable Information

{0}: Cause of the error

Explanation

An event occurred in internal broker processing.

System Action

Processing is continued.

13.42.10 MQJMSRA_EC3000 to MQJMSRA_EC3099

ERROR: ISJEE_MQJMSRA_EC3001: MQRA:EC:{0}

Variable Information

{0}: Error information

Explanation

An exception occurred in the [jmsra] resource adapter.

System Action

Processing is interrupted.

User Action

Refer to [Detail Error Information], and remove the cause of error information {0} if necessary.

[Detail Error Information]

Error information of variable information {0}	Cause	Action
Error information that starts with "cDMC():createConnection failed"	An error occurred in the connection to the message broker.	When the JMS function is used <ul style="list-style-type: none">- If error information {0} contains a message that starts with 'IJMQ', take the action advised in this message and then restart the JServer cluster or Interstage Java EE DAS service that output the message.- If there is no message that starts with 'IJMQ', refer to the message that was also output and fix the error.
		When the JMS function is not used There is no need to take the action advised in this message.

13.42.11 MQJMSRA_EC4000 to MQJMSRA_EC4099

ERROR: ISJEE_MQJMSRA_EC4001: {0}

Variable Information

{0}: Cause of the error

Explanation

An exception occurred in ExceptionListener onException.

System Action

Processing is continued.

User Action

If you want to process this Exception in a user application, implement ExceptionListener.

13.42.12 MQJMSRA_MC2000 to MQJMSRA_MC2099

WARNING: ISJEE_MQJMSRA_MC2001: {0}

Variable Information

{0}: Cause of the error

Explanation

One of the following problems might have occurred.

- Connection was already closed.
- Regardless of whether the authentication for the message broker is executed in the application, the user name/password were omitted when the createConnection method was executed. The default values (guest/guest) are used for the user name/password.
- Regardless of whether the authentication for the message broker is executed in the container, the user name/password were specified when the createConnection method was executed. The user name/password that were set for the connection factory are used for the user name/password.

System Action

Processing is continued.

User Action

Take the following action in the application.

- Check whether the API method of an already closed Connection object was called.
- Configure the settings so that authentication for the message broker is executed in the application, and review the application to check whether the user name/password were omitted when the createConnection method was executed.
- Configure the settings so that authentication for the message broker is executed in the container, and review the application to check whether the user name/password were specified when the createConnection method was executed.

13.42.13 MQJMSRA_MC4000 to MQJMSRA_MC4099

ERROR: ISJEE_MQJMSRA_MC4001: {0}

Variable Information

{0}: Cause of the error

Explanation

An error occurred during processing to connect to the message broker.

System Action

Processing is interrupted.

User Action

The cause of the error in variable information {0} contains the message ID that starts with 'IJMQ'. Refer to the Messages manual to find the message ID, and then take action.

13.42.14 MQJMSRA_MF1100 to MQJMSRA_MF1199

INFO: ISJEE_MQJMSRA_MF1101: {0}

Variable Information

{0}: Cause of the error

Explanation

The ConnectionFactory settings information is displayed.

System Action

Processing is continued.

13.42.15 MQJMSRA_MR1100 to MQJMSRA_MR1199

INFO: ISJEE_MQJMSRA_MR1101: MQRA:OMR:run:Message returned & marked for routing to the DMQ

Explanation

The message will be stored in the dead message queue.

System Action

Processing is continued.

13.42.16 MQJMSRA_MR2000 to MQJMSRA_MR2099

WARNING: ISJEE_MQJMSRA_MR2001: MQRA:OMR:run:Caught Exception from onMessage():Redelivering:{0}

Variable Information

{0}: Cause of the error

Explanation

An exception was detected while onMessage() was being processed.

System Action

Processing is continued.

User Action

Check whether a problem occurred in the application.

13.42.17 MQJMSRA_RA1100 to MQJMSRA_RA1199

INFO: ISJEE_MQJMSRA_RA1101: {0}

Variable Information

{0}: Detail information

Explanation

This is a resource adapter information message.

[Detail Information (Information)]

Detailed information of variable information {0}	Variable Information of detailed information	Explanation
onEvent: {1}	{1}: Event details	An event occurred in internal message broker processing.
SJSMQ JMSRA stopping...		The JMS resource adapter will be stopped.
SJSMQ JMSRA stopped.		The JMS resource adapter was stopped.

13.42.18 MQJMSRA_RA2000 to MQJMSRA_RA2099

WARNING: ISJEE_MQJMSRA_RA2001: {0}:{1}

Variable Information

{0}: Processing name

{1}: WARNING information

Explanation

An exception occurred in the [jmsra] resource adapter.

System Action

Processing is continued.

User Action

Refer to [Detail Information (Warning)], and remove the cause of WARNING information {1} if necessary.

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

[Detail Information (Warning)]

WARNING information of variable information {1}	Variable information of WARNING information	Cause	Action
Connection Failed:{2}	{2}: Detail	An error occurred in the connection to the message broker.	<ol style="list-style-type: none"> 1. Check whether the message broker has stopped. 2. Check whether the Interstage Java EE DAS service has stopped. 3. Review the network environment.
Invalid value:{2}	{2}: Detail	An invalid value was specified.	There is no need to take action.
Reconnecting...Loop Attempt# {2}	{2}: Detail	An error occurred in the connection to the message broker, so reconnection processing is performed.	There is no need to take action.
Reconnect successful on loop# {2}	{2}: Number of reconnections	Processing to reconnect to the message broker succeeded.	There is no need to take action.

WARNING information of variable information {1}	Variable information of WARNING information	Cause	Action
Reconnect unsuccessful on loop# {2}	{2}: Detail	Processing to reconnect to the message broker failed.	<ol style="list-style-type: none"> 1. Check whether the message broker has stopped. 2. Check whether the Interstage Java EE DAS service has stopped. 3. Review the network environment.
RA already started:Disallowing change from:{2}	{2}: Detail	The value in processing name {0} cannot be changed after ResourceAdapter has started.	Check whether there is a problem in the call sequence of processing name {0} in the application.

13.42.19 MQJMSRA_RA4000 to MQJMSRA_RA4099

ERROR: ISJEE_MQJMSRA_RA4001: {0}

Variable Information

{0}: Cause of the error

Explanation

An exception occurred during ResourceAdapter processing.

System Action

Processing is interrupted.

User Action

The message broker has not started. Start the message broker, and then restart the IJServer cluster or Interstage Java EE DAS service.

If the cause of the error in variable information {0} contains the message ID that starts with 'IJMQ', refer to the Messages manual to find the message ID and then take action.

13.42.20 MQJMSRA_SA4000 to MQJMSRA_SA4099

ERROR: ISJEE_MQJMSRA_SA4001: createSubscriber:Exception:Require non-null, non-empty clientId for clustered non-durable subscription:clientId={0}

Variable Information

{0}: Client ID

Explanation

A client ID was not set.

System Action

An exception will be notified to the application.

User Action

Set a client ID.

13.42.21 MQJMSRA_TD4000 to MQJMSRA_TD4099

WARNING: ISJEE_MQJMSRA_TD4001: delete():{0}

Variable Information

{0}: Cause of the error

Explanation

Failed to delete TemporaryTopic or TemporaryQueue.

System Action

Processing is interrupted.

User Action

Check the application.

One of the following problems might have occurred.

- TemporaryQueue or TemporaryTopic can only be deleted in the same connection session.
- To delete TemporaryQueue or TemporaryTopic in the application, check whether Consumer was closed.

13.43 Messages that Contain "NAGT" in the Message ID

13.43.1 NAGT0000 to NAGT0099

NAGT0002:An exception has occurred during the synchronization of this node with the DAS.

Explanation

An error occurred during synchronous repository processing.

System Action

Processing is interrupted.

User Action

Check whether a message showing the cause of the error was output before this message.

If "Listen failed on port: Address already in use: JVM_Bind" is output in the exception information, the port number may be duplicated with the port used by another service or application in the system.

If a message showing the cause was not output, collect investigation information using the iscollectinfo command and contact Fujitsu technical support.

ERROR: NAGT0003:An exception has occurred during the initialization of the NodeAgent.

Explanation

Failed to initialize the Interstage Java EE Node Agent service.

System Action

Processing is interrupted.

User Action

Refer to the exception information that was also output and fix the error.

If "Listen failed on port: ~ Address already in use: JVM_Bind ~" is output in the exception information, the port number may be duplicated with the port used by another service or application in the system.

If "Cannot bind to URL ~ Connection refused: connect ~" is output to the exception information, the IP address of the local host set in the hosts file may be incorrect. Set the correct value in the hosts file, and then reexecute the operation.

INFO: NAGT0004:Starting Node Agent...

Explanation

Startup of the Interstage Java EE Node Agent service will start.

WARNING: NAGT0005:The "das.properties" could not be read during startup, the NodeAgent will be started in an "Unbound" state.

Explanation

Failed to read the Interstage Java EE Node Agent service das.properties file.

System Action

Processing is continued.

User Action

An error occurred while reading the Interstage Java EE Node Agent service das.properties file. If information showing the cause of the error was not output to the Interstage Java EE Node Agent service server log file, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: NAGT0006:The "nodeagent.properties" could not be found! Terminating the Node Agent Service.

Explanation

Failed to read the Interstage Java EE Node Agent service nodeagent.properties file.

System Action

Processing is interrupted.

User Action

An error occurred while reading the Interstage Java EE Node Agent service das.properties file. If information showing the cause of the error was not output to the Interstage Java EE Node Agent service server log file, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

WARNING: NAGT0008:Node Agent could not START instance {0}.

Variable Information

{0}: Server instance name

Explanation

Failed to start the server instance.

System Action

Processing is interrupted.

User Action

An error occurred in the server instance start processing. Follow the action advised in the event log message that was output immediately before, and investigate the cause of the failure to start the server instance. If this message was not output, investigate the cause of the failure based on the information that was output to the server instance server log (server.log) and the Java VM log (jvm.log).

WARNING: NAGT0009:Node Agent could not STOP instance {0}.

Variable Information

{0}: Server instance name

Explanation

Failed to stop the server instance.

System Action

Processing is interrupted.

User Action

An error occurred in the server instance stop processing. Follow the action advised in the event log message that was output immediately before, and investigate the cause of the failure to stop the server instance. If this message was not output, investigate the cause of the failure based on the information that was output to the server instance server log (server.log) and the Java VM log (jvm.log).

INFO: NAGT0013:Stopping Node Agent...

Explanation

The stopping of the Interstage Java EE Node Agent service will start.

WARNING: NAGT0014:Unexpected Node Agent exception.

Explanation

An error occurred during Interstage Java EE Node Agent service processing.

System Action

Processing is continued.

User Action

An error occurred during Interstage Java EE Node Agent service processing, however processing is continued.

INFO: NAGT0018:The nodeagent is starting the server instance {0}

Variable Information

{0}: Server instance name

Explanation

The server instance start processing will start.

INFO: NAGT0019:The nodeagent is stopping the server instance {0}

Variable Information

{0}: Server instance name

Explanation

The server instance stop processing will start.

INFO: NAGT0020:The nodeagent has rendezvoused with the DAS and will be using URL {0} for future communication.

Variable Information

{0}: JMX accessURL

Explanation

The connection to the Interstage Java EE DAS service succeeded.

INFO: NAGT0021: The nodeagent is attempting to rendezvoused with the DAS on URL {0}

Variable Information

{0}: JMX accessURL

Explanation

The connection to the Interstage Java EE DAS service will start.

ERROR: NAGT0022: The nodeagent failed to rendezvous with the DAS on URL {0}

Variable Information

{0}: JMX accessURL

Explanation

The connection to the Interstage Java EE DAS service failed.

System Action

Processing is interrupted.

User Action

- If the Interstage Java EE DAS service has not started, start it and then reexecute the operation.
- If the Interstage Java EE DAS service has started, check the Interstage Java EE Node Agent service and Interstage Java EE DAS service server logs.
- If information showing the cause of the error was not output to the log file, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

WARNING: NAGT0024: The node agent could not stop instance {0}. It is {1} and must be running.

Variable Information

{0}: Server instance name

{1}: Server instance status

Explanation

The server instance status was not 'not running'.

System Action

Processing is continued.

INFO: NAGT0025: The node agent could not configure logging levels. Default logging level will be used.

Explanation

The default log level was set for the Interstage Java EE Node Agent service logger.

ERROR: ISJEE_NAGT0026: There was a connection failure while trying to connect to the Domain Administration Server (DAS) end point: [host={0}], [port={1}]. This could mean that there was a network failure.

Variable Information

{0}: Host name

{1}: Port number

Explanation

An error occurred in the connection to the Interstage Java EE DAS service.

An authentication information inconsistency or a network environment error might have occurred.

System Action

Processing is interrupted.

User Action

If administrator user-related settings were changed while the Interstage Java EE Node Agent service was running, an inconsistency might have occurred in the Interstage Java EE DAS service and Interstage Java EE Node Agent service authentication information causing this message to be output.

Refer to "[14.2.9 When a Message is Output Stating that Authentication has Failed](#)" in the "[Chapter 14 Troubleshooting](#)" and take action.

If the above does not apply, check whether there is an abnormality in the network environment.

ERROR: ISJEE_NAGT0028:It appears that the Domain Administration Server (DAS) with [host={0}], [port={1}], [protocol={2}] is down. It could also mean that the network settings on DAS machine need to be modified. If you believe that the DAS is running, this error usually comes when the correct address is not obtained by client.

Variable Information

{0}: Host name

{1}: Port number

{2}: Protocol

Explanation

The connection to the Interstage Java EE DAS service failed.

The Interstage Java EE DAS service might not be running.

System Action

Processing is interrupted.

User Action

Check the operation status of the Interstage Java EE DAS service - if it is not running, then start it. If this message is output regardless of whether the Interstage Java EE DAS service is running, use the `iscollectinfo` command to collect troubleshooting information, and send it to a Systems Engineer.

If the Interstage Java EE DAS service is started after this message is output, there is no need to take action.

INFO: NAGT0030:Creating Instance {0}

Variable Information

{0}: Server instance name

Explanation

The server instance files will be created.

INFO: NAGT0031:Deleting Instance {0}

Variable Information

{0}: Server instance name

Explanation

The server instance files will be deleted.

INFO: NAGT0032:Instance {0} Already Exists.

Variable Information

{0}: Server instance name

Explanation

The server instance already exists.

ERROR: NAGT0033:The JMX port for the DAS's system connector was not sent back when the Node Agent rendezvoused.

Explanation

The connection to the Interstage Java EE DAS service failed.

System Action

Processing is interrupted.

User Action

- If the Interstage Java EE DAS service has not started, start it and then reexecute the operation.
- If the Interstage Java EE DAS service has started, check the Interstage Java EE Node Agent service and Interstage Java EE DAS service server logs.
- If information showing the cause of the error was not output to the log file, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

ERROR: NAGT0035:The NodeAgent failed to complete the initial synchronization with the DAS. Please make sure the DAS is running and is accessible from the NodeAgent's server

Explanation

Failed to reference the Interstage Java EE Node Agent service definition information.

System Action

Processing is interrupted.

User Action

Processing for synchronization of the repository with the Interstage Java EE DAS service might have failed. Check whether an error/warning that showing that synchronization of the repository has failed was output before this message.

INFO: NAGT0038:Executing Synchronization for node-agent With DAS

Explanation

Synchronization of the repository will start.

INFO: NAGT0039:Synchronization for {0} - {1} and took {2} milliseconds

Variable Information

- {0}: Server instance name
- {1}: Return value
- {2}: Elapsed time

Explanation

Synchronization of the repository succeeded.

ERROR: NAGT0040:NodeAgent did not find any keystore to complete the Instance synchronization.

Explanation

Synchronization of the repository failed.

System Action

Processing is interrupted.

User Action

The keystore does not exist, therefore synchronization of the repository failed. If information showing the cause of the error was not output to the Interstage Java EE Node Agent service server log file, use the `iscollectinfo` command to collect investigation information, and then contact your service engineer.

INFO: NAGT0042:DAS url = {0}

Variable Information

{0}: URL

Explanation

The URL of the Interstage Java EE DAS service JMX connector is {0}.

System Action

Processing is continued.

INFO: NAGT0043:NodeAgent url = {0}

Variable Information

{0}: URL

Explanation

The URL of the Interstage Java EE Node Agent service JMX connector is {0}.

The address displayed in the URL is the address that was bound by the JMX connector.

System Action

Processing is continued.

WARNING: NAGT0045:Node Agent {0} could not be notified.

Variable Information

{0}: Node agent name

Explanation

The Node Agent name could not be notified to the Interstage Java EE Node Agent service.

System Action

Processing is continued.

User Action

If the Interstage Java EE Node Agent service is not running, then there is no need to take action.

If this message is output regardless of whether the Interstage Java EE Node Agent service is running, use the `iscollectinfo` command to collect troubleshooting information, and send it to a Systems Engineer.

13.43.2 NAGT1000 to NAGT1099

WARNING: NAGT1001:Stopping Node Agent...

Explanation

Interstage Java EE Node Agent service start was aborted due to an error.

System Action

Processing is continued.

User Action

The connection to the Interstage Java EE DAS service might have failed.

- If the Interstage Java EE DAS service has not started, start it and then reexecute the operation.
- If the Interstage Java EE DAS service has started, check the Interstage Java EE Node Agent service and Interstage Java EE DAS service server logs.
- If information showing the cause of the error was not output to the log file, use the `iscollectinfo` command to collect investigation information, and then contact your service engineer.

ERROR: NAGT1002:Unexpected Node Agent exception.

Explanation

An error occurred during Interstage Java EE Node Agent service processing.

System Action

Processing is interrupted.

User Action

Check the Interstage Java EE Node Agent service server log.

If the exception information "Listen failed on port: ~ Address already in use: JVM_Bind ~" is output in at the same time as this message, the port number may be duplicated with the port used by another service or application in the system.

If information showing the cause of the error was not output to the server log file of the Interstage Java EE Node Agent service, collect investigation information using the `iscollectinfo` command and contact Fujitsu technical support.

WARNING: NAGT1003:Synchronization for {0} - {1} and took {2} milliseconds

Variable Information

- {0}: Server instance name
- {1}: Return value
- {2}: Elapsed time

Explanation

Synchronization of the repository failed.

System Action

Processing is continued.

User Action

Synchronization of the repository failed, therefore it was not possible to update with the latest information. To update with the latest information, restart the Interstage Java EE Node Agent service.

ERROR: NAGT1004:Synchronization for {0} - {1} and took {2} milliseconds

Variable Information

- {0}: Server instance name
- {1}: Return value
- {2}: Elapsed time

Explanation

Synchronization of the repository failed.

System Action

Processing continues.

User Action

Synchronization of the repository failed, therefore it was not possible to update with the latest information. To update with the latest information, restart the Interstage Java EE Node Agent service.

Windows32/64

The desktop heap might be depleted.

If the problem is not resolved, use the iscollectinfo command to collect troubleshooting information, and send it to a Systems Engineer.

ERROR: NAGT1005: The Appserver instance {0} does not exit. This could be caused by an error in a previous Node Agent Synchronization cycle. Please check the Node Agents log for the specific error.

Variable Information

{0}: Server instance name

Explanation

The repository operation failed.

System Action

Processing is interrupted.

User Action

The repository operation failed. The instance directory that exists in the repository might be illegal for the following reasons:

- The instance was deleted when a file in the repository was open in an editor.
- Another operation was performed during this one.

To restore the repository, follow the procedure below:

1. If the file in the repository is open in an editor, then close it.
2. Delete the target server instance.
3. Manually delete the target server instance directory.
4. Restart the Interstage Java EE Node Agent service.

WARNING: ISJEE_NAGT1006: Unable to send the status of instances to instance {0}: message={1}. {2}

Variable Information

{0}: Server instance name

{1}: Message information

{2}: Detail

Explanation

The server instance start status has changed, therefore the Interstage Java EE Node Agent service tried to notify the latest server instance start status to the EJB Dispatcher. However, the notification failed.

System Action

Processing continues.

User Action

Based on the detail in {2}, remove the cause of the error.

Additionally, because the notification of the latest status failed the EJB Dispatcher management information may not be the latest information. After the cause of the error has been removed, restart the IJServer cluster which is run by the EJB Dispatcher then update the EJB Dispatcher management information.

13.44 Messages that Contain "NAM" in the Message ID

13.44.1 NAM0000 to NAM0099

ERROR: ISJEE_NAM0002: Exception in NamingManagerImpl copyMutableObject().

Explanation

JNDI object serialization or deserialization processing failed.

System Action

An exception is returned.

User Action

Refer to the error information, remove the cause of the error and then reexecute.

ERROR: ISJEE_NAM0003: Exception in SerialContextProviderImpl InsertSerialContextProvider() : {0}.

Variable Information

{0}: Error information

Explanation

Failed to execute the SerialContextProviderImpl class InsertSerialContextProvider() method.

System Action

An exception is returned.

User Action

Contact your service engineer.

ERROR: ISJEE_NAM0004: Exception during name lookup : {0}

Variable Information

{0}: JNDI name

Explanation

Failed to execute the lookup method for the JNDI name described in the variable information.

System Action

An exception is returned.

User Action

Refer to the exception information that was output after this message, remove the cause of the error and then reexecute.

ERROR: ISJEE_NAM0005: JMS Connection Factory resource not found: {0}

Variable Information

{0}: Error information

Explanation

Cannot find the JMS connection factory.

System Action

An exception is returned.

User Action

- Check that the JMS connection factory has been registered in the connection destination naming service.
- Check that the specified JMS connection factory name is correct.

ERROR: ISJEE_NAM0006: JMS Destination Object or Administered Object not found: {0}

Variable Information

{0}: JMS send destination resource (Destination) name, or managed object resource JNDI name

Explanation

Cannot find the JMS send destination resource or managed object.

System Action

An exception is returned.

User Action

- Check that the JMS send destination resource has been registered in the connection destination naming service.
- Check that the specified JMS send destination resource (Destination) name is correct.
- Check that the managed object resource has been registered in the connection destination naming service.
- Check that the managed object resource JNDI name is correct.
- Make sure that the resource type for the JMS send destination resource or managed object resource is valid.

ERROR: ISJEE_NAM0007: Message Destination Reference {0} has not been linked to a Message Destination

Variable Information

{0}: Identifier

Explanation

The Destination reference name was not linked to the actual message Destination.

System Action

An exception is returned.

User Action

Check that the specified message target reference was defined correctly.

ERROR: ISJEE_NAM0008: Invalid Destination: {0} for {1}

Variable Information

{0}: Identifier

{1}: Identifier

Explanation

The Destination name cannot be resolved.

System Action

An exception is returned.

User Action

Check that the Destination name was defined correctly.

13.44.2 NAM1000 to NAM1099

NAM1000: No Endpoints selected in com.sun.appserv.iiop.endpoints property. Using {0}:{1} instead

Variable Information

{0}: Host name
{1}: Port number

Explanation

The com.sun.appserv.iiop.endpoints property was not specified, therefore the host name and port number that were output to the variable information are used.

System Action

Processing is continued.

User Action

There is no need to take action if the host name and port number that were output to the variable information are correct. If you want to prevent the error message, or if the host name and port number that were output to the variable information are illegal, specify a correct value for the com.sun.appserv.iiop.endpoints property and then reexecute.

NAM1001: No Endpoints selected in com.sun.appserv.iiop.endpoints property. Using JNDI Provider URL {0} instead

Variable Information

{0}: Error information

Explanation

The com.sun.appserv.iiop.endpoints property that was specified is invalid.

System Action

An exception is returned.

User Action

Check that the com.sun.appserv.iiop.endpoints property was set correctly.

NAM1002: Exception : (0) thrown for bad provider URL String: {1}

Variable Information

{0}: Error information

Explanation

An invalid JNDI provider URL was specified.

System Action

An exception is returned.

User Action

Check that the JNDI provider URL that was specified is valid.

NAM1003: Bad host:port entry: {0} Exception thrown : {1}

Variable Information

{0}: Connection information
{1}: Exception information

Explanation

The connection information that was specified for the sun-acc.xml file target-server element or the connection information (host name and port number) that was specified for the com.sun.appserv.iiop.endpoints property is incorrect.

System Action

If multiple items of connection information were specified, then the connection information defined next will be used.

If multiple items of connection information were not specified, startup of the client container is aborted. Alternatively, java.lang.IllegalArgumentException is returned to the application.

User Action

Refer to the exception information, check that the connection information is correct, remove the cause of the error and then reexecute.

NAM1004: Unknown host: {0} Exception thrown : {1}

Variable Information

{0}: Host name

{1}: Exception information

Explanation

The connection information that was specified for the sun-acc.xml file target-server element or the host name that was specified for the com.sun.appserv.iiop.endpoints property is incorrect.

System Action

Startup of the client container is aborted. Alternatively, the java.lang.ExceptionInInitializerError exception is returned to the application.

User Action

Refer to the exception information, check that the host name is correct, remove the cause of the error and then reexecute.

NAM1005: No Endpoints selected. Please specify using system property com.sun.appserv.iiop.endpoints.

Explanation

The connection information that was specified for the sun-acc.xml file target-server element or the connection information that was specified for the com.sun.appserv.iiop.endpoints property is incorrect.

System Action

Startup of the client container is aborted. Alternatively, java.lang.IllegalArgumentException is returned to the application.

User Action

Refer to the error information that was output immediately before and take action.

NAM1008: Please specify ic-based or ic-based-weighted as the LoadBalancing policy

Explanation

The value that was specified for the com.sun.appserv.iiop.loadbalancingpolicy property is invalid.

System Action

The behavior is the same as when ic-based is specified for the com.sun.appserv.iiop.loadbalancingpolicy property.

User Action

Specify a correct value for the com.sun.appserv.iiop.loadbalancingpolicy property and then reexecute.

13.44.3 NAM2000 to NAM2099

NAM2001: Could not find an endpoint to send request to!**Explanation**

Could not find a connection destination to send the JNDI request to.

System Action

Processing is continued.

User Action

Check that the JNDI connection destination is running correctly.

WARNING: ISJEE_NAM2003: Reference name {0} already exists in web module [{1}]**Variable Information**

{0}: Resource reference name

{1}: Web application name

Explanation

Resource reference name {0} has already been defined in Web application name {1}.

System Action

Processing is continued.

User Action

Check whether an identical resource reference name has been defined in the deployment descriptor <resource-ref> tag and the @Resource annotation, remove the cause of the error and then reexecute.

INFO: ISJEE_NAM2004: Binding name:'{0}'**Variable Information**

{0}: JNDI name

Explanation

An object for the JNDI name in the variable information will be registered.

ERROR: ISJEE_NAM2005: Invalid Destination: `{0}` for {1}**Variable Information**

{0}: Destination name

{1}: Definition name

Explanation

The definition name for the Destination name is invalid.

System Action

Processing is interrupted.

User Action

Specify a valid name for the Destination name.

ERROR: ISJEE_NAM2006: Message Destination Reference {0} has not been resolved**Variable Information**

{0}: Reference name

Explanation

The Message Destination reference cannot be resolved.

System Action

Processing is interrupted.

User Action

Set a valid Message Destination definition.

ERROR: ISJEE_NAM2007: Exception occurred : {0}

Variable Information

{0}: Error information

Explanation

An error occurred in JNDI processing.

System Action

Processing is interrupted.

User Action

Take action according to the error information shown in the variable information. The following error information is output.

Error information	Cause	Action
IDL:omg.org/ CosNaming/ NamingContext/ NotFound:1.0	Possible causes are as follows: <ul style="list-style-type: none">- There was an enquiry to the specified host name and port number, however the specified JNDI name object does not exist.- The specified JNDI name has not been registered in the naming service.	Take the following action. <ul style="list-style-type: none">- Check whether the host name or port number is valid. Additionally, check whether the JNDI name Enterprise JavaBeans specified for the connection destination has been deployed.- Check whether the specified JNDI name has been registered in the naming service.

INFO: ISJEE_NAM2101: corbaloc url ==> {0}

Variable Information

{0}: IIOP trace information

Explanation

In IIOP communication, the connection is made to the variable information IIOP address information. The IIOP address information is displayed as "iiop:1.2@host name:port number". Each additional item is separated by a comma. The format is as follows:

Example of the IIOP address information:

```
iiop:1.2@localhost:23710,iiop:1.2@localhost:23821,iiop:1.2@localhost:23921
```

13.45 Messages that Contain "OM" in the Message ID

13.45.1 OM1000 to OM1099

ERROR: ISJEE_OM1001: The shutdown time of cluster exceeded the process monitoring time: CLUSTER={0} INSTANCE={1} PID={2}

Variable Information

{0}: IJServer cluster name
{1}: Server instance name
{2}: Process ID

Explanation

IJServer cluster stop processing did not complete even though the monitoring time was exceeded.

If "PID=none" is displayed, it means that the process ID could not be obtained. The process ID is not obtained in the following cases:

- When the wrong Java VM option was used when the process started
- When the port used for IJServer cluster debug was a duplication of another one
- When debug was started for an IJServer cluster for which the number of server instances is 2 or more
- When the process was stopped using System.exit

System Action

The application process is stopped forcibly.

User Action

Refer to the log file, and investigate the cause of the time it took to stop the application process. A thread dump is output to the IJServer cluster Java VM log (jvm.log). Investigate the problem area of the application from the thread dump that was output.

ERROR: ISJEE_OM1002: The startup time of cluster exceeded the process monitoring time: CLUSTER={0} INSTANCE={1} PID={2}

Variable Information

{0}: IJServer cluster name
{1}: Server instance name
{2}: Process ID

Explanation

IJServer cluster start processing did not complete even though the monitoring time was exceeded.

If "PID=none" is displayed, it means that the process ID could not be obtained. The process ID is not obtained in the following cases:

- When the wrong Java VM option was used when the process started
- When the port used for IJServer cluster debug was a duplication of another one
- When debug was started for an IJServer cluster for which the number of server instances is 2 or more
- When the process was stopped using System.exit

System Action

IJServer cluster processing is aborted.

User Action

Out of consideration for system performance and the number of server instances, reestimate the monitoring time, change the IJServer cluster startup wait time, and then reexecute processing. Additionally, it is possible that an application program error caused IJServer cluster start processing to take longer. Investigate the application program to fix the cause and reexecute processing.

A thread dump is output to the IJServer cluster Java VM log (jvm.log). Investigate the problem area of the application from the thread dump that was output.

ERROR: ISJEE_OM1003: All the application processes have been terminated: CLUSTER={0}

Variable Information

{0}: IJServer cluster name

Explanation

Automatic start of the IJServer cluster application process failed, and all server instances that are running were terminated.

System Action

The IJServer cluster is stopped.

User Action

Fix the cause of the application process restart failure, then restart the IJServer cluster.

ERROR: ISJEE_OM1004: The application process could not be reactivated automatically: CLUSTER={0} INSTANCE={1} PID={2}

Variable Information

{0}: IJServer cluster name

{1}: Server instance name

{2}: Process ID

Explanation

In start processing for process restart after the IJServer cluster application process was stopped forcibly following a crash or timeout, process restart failed for some reason.

If "PID=none" is displayed, it means that the process ID could not be obtained. The process ID is not obtained in the following cases:

- When the wrong Java VM option was used when the process started
- When the port used for IJServer cluster debug was a duplication of another one
- When debug was started for an IJServer cluster for which the number of server instances is 2 or more
- When the process was stopped using System.exit
- When startup does not complete even though start processing for process restart has exceeded the monitoring time

Possible causes of the process startup failure are as follows:

- The wrong Java VM option was used. Refer to the Java VM log file, and check that the right Java VM option was used.
- The port used for IJServer cluster debug may be a duplication of another one. Check whether the port used for debug is already being used.
- Debug cannot start for an IJServer cluster for which the number of server instances is 2 or more. For details, refer to "Debugging Using the Debugger" in the "Java EE Application Development" chapter.

System Action

The IJServer cluster is stopped.

If at least 1 application process that is running using multiple concurrency remains, however, the IJServer cluster operation is continued with one server instance terminated.

User Action

Investigate the cause of the application process startup failure according to the Action in the event log message that was output immediately before. If no message was output, investigate according to the information that was output to the IJServer cluster server log (server.log) and Java VM log (jvm.log).

ERROR: ISJEE_OM1005: Application processing time exceeded monitoring time: CLUSTER={0} INSTANCE={1} PID={2}

Variable Information

{0}: IJServer cluster name

{1}: Server instance name

{2}: Process ID

Explanation

The application processing time exceeded the monitoring time, therefore the application terminated abnormally.

System Action

The application is stopped.

User Action

Giving consideration to the server-side system performance, reestimate the monitoring time, change the maximum application processing time, and then reexecute processing. A possible cause of the long application processing time might be that the application is invalid. Investigate the application to remove the cause of the error, and then reexecute processing.

Investigate whether there is a problem in the application based on the thread dump that was output to the IJServer cluster Java VM log (jvm.log).

ERROR: ISJEE_OM1006: Error occurred during startup of server application running under cluster: CLUSTER={0} INSTANCE={1} PID={2}

Variable Information

{0}: IJServer cluster name
{1}: Server instance name
{2}: Process ID

Explanation

An error occurred in start processing of a server application process that runs under IJServer cluster.

If "PID=none" is displayed, it means that the process ID could not be obtained. The process ID is not obtained in the following cases:

- When the wrong Java VM option was used when the process started
- When the port used for IJServer cluster debug was a duplication of another one
- When debug was started for an IJServer cluster for which the number of server instances is 2 or more
- When the process was stopped using System.exit

Possible causes of the process startup failure are as follows:

- The wrong Java VM option was used. Refer to the Java VM log file, and check that the right Java VM option was used.
- The port used for IJServer cluster debug may be a duplication of another one. Check whether the port used for debug is already being used.
- Debug cannot start for an IJServer cluster for which the number of server instances is 2 or more. For details, refer to "[3.3.2 Debugging Using the Debugger](#)" in the "Java EE Application Development" chapter.

System Action

IJServer cluster processing is aborted.

User Action

Investigate the cause of the application process startup failure according to the Action in the event log message that was output immediately before. If no message was output, investigate according to the information that was output to the IJServer cluster server log (server.log) and Java VM log (jvm.log). If a Java VM error message is output, refer to the "JDK/JRE Tuning" chapter of the Tuning Guide and investigate the cause of the abnormal termination.

In all other cases, take the following action:

- The Java VM option may be wrong.
Check the Java VM option.
- There may be insufficient memory.
Check that there is sufficient memory.

- **Windows32/64**

The desktop heap may be depleted.

Increase the total server instance for IIServer clusters that have started. If this message was output when there was sufficient available memory, the desktop heap may have been used up.

If the problem is still not resolved, refer to "Operational Errors", "IIServer cluster Start up Errors" in the "Troubleshooting" chapter.

ERROR: ISJEE_OM1007: Two clusters have begun processing under the same name: CLUSTER={0}**Variable Information**

{0}: IIServer cluster name

Explanation

Start processing for IIServer clusters of the same name is in progress.

System Action

IIServer cluster processing is aborted.

User Action

If the IIServer cluster name is wrong, perform processing again using the right IIServer cluster name.

ERROR: ISJEE_OM1008: Two clusters of the same name are being started: CLUSTER={0}**Variable Information**

{0}: IIServer cluster name

Explanation

IIServer clusters of the same name are being started.

System Action

IIServer cluster processing is aborted.

User Action

If the IIServer cluster name is wrong, perform processing again using the right IIServer cluster name.

ERROR: ISJEE_OM1009: Two clusters of the same name are being stopped: CLUSTER={0}**Variable Information**

{0}: IIServer cluster name

Explanation

Stop processing for IIServer clusters of the same name is in progress.

System Action

IIServer cluster processing is aborted.

User Action

If the IIServer cluster name is wrong, perform processing again using the right IIServer cluster name.

ERROR: ISJEE_OM1010: Cluster is stopped: CLUSTER={0}**Variable Information**

{0}: IIServer cluster name

Explanation

The IIServer cluster is not running.

System Action

IJServer cluster processing is aborted.

User Action

If the IJServer cluster name is wrong, perform processing again using the right IJServer cluster name.

ERROR: ISJEE_OM1011: A server application running under the cluster terminated abnormally: CLUSTER={0} INSTANCE={1} PID={2}

Variable Information

{0}: IJServer cluster name
{1}: Server instance name
{2}: Process ID

Explanation

A server application process that runs under IJServer cluster ended abnormally.

System Action

Processing is interrupted.

User Action

Take action according to the event log (Windows)/system log (Solaris/Linux) message that was output immediately before this message, and investigate why the application ended abnormally. If no event log/system log message was output immediately before this message, it is possible that an application error was the cause. Refer to the log file and investigate the application.

If the IJServer cluster ended abnormally, investigate the problem area from the information that was output to the IJServer cluster server log (server.log) and Java VM log (jvm.log).

ERROR: ISJEE_OM1012: A system error occurred: CODE='{0}'

Variable Information

{0}: Error code

Explanation

A system error may have occurred, or there may be insufficient memory.

System Action

Processing is interrupted.

User Action

If it is possible that there is insufficient memory, refer to the Tuning Guide, reestimate the amount of memory that is required to run this product, and check that sufficient memory has been set aside.

If sufficient memory has been set aside as the amount of memory that is required for this product, it is possible that the amount of memory used by another application is insufficient. When you reestimate, also consider other applications that run on the same machine, and investigate whether the amount of memory is appropriate.

If the result of the reestimate confirms that the amount of memory is insufficient, contact the system administrator. The increase of the main memory or extension of the page file (Windows)/swap area (Solaris/Linux) is performed by the system administrator.

In all other cases, use the iscollectinfo command to collect information for investigation. Send the information to a Systems Engineer.

ERROR: ISJEE_OM1013: No response from JavaVM: CLUSTER={0} INSTANCE={1} PID={2}

Variable Information

{0}: IJServer cluster name
{1}: Server instance name
{2}: Process ID

Explanation

There is no response from the Java VM. The system load may be high, or there may be insufficient memory.

System Action

If 0 was set for the maximum application processing time and application processing time monitoring is disabled, processing is continued.

User Action

Investigate the reason for the non-return of a response from the Java VM based on the state of the system load or the amount of memory used, and the log file.

Additionally, investigate whether there is a problem in the application based on the thread dump that was output to the IJServer cluster Java VM log (jvm.log).

ERROR: ISJEE_OM1014: Cluster quit abnormally: CLUSTER={0}

Variable Information

{0}: IJServer cluster name

Explanation

An application process ended abnormally, therefore the IJServer cluster was stopped.

System Action

The IJServer cluster is stopped.

User Action

Take action according to the event log (Windows)/console (Solaris/Linux) message that was output before this message to fix the cause, then restart the IJServer cluster.

INFO: ISJEE_OM1015: Cluster was started up: CLUSTER={0}

Variable Information

{0}: IJServer cluster name

Explanation

The IJServer cluster was started.

INFO: ISJEE_OM1016: Cluster was stopped: CLUSTER={0}

Variable Information

{0}: IJServer cluster name

Explanation

The IJServer cluster was stopped.

INFO: ISJEE_OM1017: Cluster was stopped forcibly: CLUSTER={0}

Variable Information

{0}: IJServer cluster name

Explanation

The IJServer cluster was stopped forcibly.

WARNING: ISJEE_OM1018: The process has stopped because JavaVM ran out of memory: CLUSTER={0} KIND={1} INSTANCE={2} PID={3}

Variable Information

- {0}: IJServer cluster name
- {1}: Memory type code
- {2}: Server instance name
- {3}: Process ID

Explanation

The IJServer cluster process was stopped because of insufficient Java VM heap area.

If "PID=none" is displayed, it means that the process ID could not be obtained. The process ID is not obtained in the following cases:

- When the wrong Java VM option was used when the process started
- When the port used for IJServer cluster debug was a duplication of another one
- When debug was started for an IJServer cluster for which the number of server instances is 2 or more
- When the process was stopped using System.exit

System Action

IJServer cluster processes in which there is insufficient Java VM heap area are stopped.

User Action

If this occurs frequently, change the heap area that is specified in the Java VM option as follows:

Additionally, for details on the tuning policy, refer to the "JDK/JRE Tuning" chapter of the Tuning Guide.

Memory type code: 0 (C heap area)

Reestimate the amount of memory that is required to run IJServer cluster, and check that sufficient memory has been set aside.

If sufficient memory has been set aside as the amount of memory that is required for IJServer cluster, it is possible that the amount of memory used by another application is insufficient.

When you reestimate, also consider other applications that run on the same machine, and investigate whether the amount of memory is appropriate.

If the result of the reestimate confirms that the amount of memory is insufficient, contact the system administrator.

The increase of the main memory or extension of the swap area is performed by the system administrator.

Additionally, if the Java heap amount is greater than required, reduce the -Xmx value or the value specified for -XX:MaxPermSize.

Linux32/64

Check if the number of threads that can be executed by the service operator user has been exceeded. If the upper limit has been exceeded, take action by editing /etc/security/limits.conf.

Memory type code:1 (Java heap area)

Extend the maximum value for the Java heap area in the Java VM option -Xmx option, then restart the IJServer cluster.

For details on the Java heap area when OutOfMemoryError occurs, refer to heap_size of the Java VM log (jvm.log).

When there is available heap_size for max_heap_size, there may also be insufficient heap area in the following cases. Extend the heap area in these cases also.

- When an object that you tried to generate is extremely large
- When there is no consecutive heap area



Example

When the heap area is 512Mbytes

```
-Xmx512m
```

Memory type code: 2 (Java Permanent generation space)

Extend the maximum value for the Permanent generation space in the Java VM option `-XX:MaxPermSize` option, then restart the IJServer cluster.

For details on the Java Permanent area when `OutOfMemoryError` occurs, refer to `perm_size` of the Java VM log (`jvm.log`).

Example

When the heap area is 512Mbytes

```
-XX:MaxPermSize=512m
```

Memory type code: -1 (Failed to get the Java VM information)

Refer to the `heap_type` value of the Java VM log (`jvm.log`) to determine the memory type code.

Take action for the above Java heap area, Permanent generation space, and C heap area.

Additionally, detail information about insufficient Java VM heap area is output to the IJServer cluster Java VM log (`jvm.log`), so refer to the information that is output before tuning.

Example

```
-----
:
-----
OutOfMemory Log
-----
pid=4696
heap_type=1
heap_size=136800
max_heap_size=6291456
perm_size=2052320
max_perm_size=67108864
requested_size=40000016
-----
VM is terminated by occurred OutOfMemoryError on Java heap.
"main" prio=6 tid=0x00307000 nid=0x12a8 [0x0092f000]
  java.lang.Thread.State: RUNNABLE
    at test.<init>(test.java:10)
    at test.main(test.java:5)
```

WARNING: ISJEE_OM1019: Thread dump output failed: CLUSTER={0} INSTANCE={1} PID={2} CODE={3}

Variable Information

{0}: IJServer cluster name
{1}: Server instance name
{2}: Process ID
{3}:

Explanation

Failed to output the thread dump.

If "PID=none" is displayed, it means that the process ID could not be obtained. The process ID is not obtained in the following cases:

- When the wrong Java VM option was used when the process started
- When the port used for IJServer cluster debug was a duplication of another one
- When debug was started for an IJServer cluster for which the number of server instances is 2 or more

- When the process was stopped using System.exit

System Action

Processing is continued.

User Action

If the message "WARNING: ISJEE_OM1018: The process has stopped because Java VM ran out of memory" was output before this message, it either means that amount of memory consumed has exceeded the maximum that can be consumed for the system resources, or that the Java heap or Permanent generation space is insufficient.

For details on the action to be taken, refer to message [OM1018](#).

WARNING: ISJEE_OM1020: Application processing time exceeded monitoring time: CLUSTER={0} INSTANCE={1} PID={2}

Variable Information

{0}: IJServer cluster name
{1}: Server instance name
{2}: Process ID

Explanation

The application processing time exceeded the monitoring time.

System Action

Application processing is continued.

User Action

Out of consideration for server-side system performance, reestimate the monitoring time, change the maximum application processing time, and then reexecute processing. Additionally, it is possible that an application error caused the application processing time to take longer. Investigate the application to fix the cause and reexecute processing.

Additionally, investigate whether there is a problem in the application based on the thread dump that was output to the IJServer cluster Java VM log (jvm.log).

WARNING: ISJEE_OM1021: Cluster degeneration operation will commence: CLUSTER={0}

Variable Information

{0}: IJServer cluster name

Explanation

The process failed to restart, therefore IJServer cluster runs with some of the server instances terminated.

System Action

The IJServer cluster operation is continued.

User Action

Fix the cause of the failure to restart the application process, then restart the IJServer cluster.

ERROR: ISJEE_OM1022: Cluster unable to start

Explanation

Failed to start the IJServer cluster.

System Action

Processing is continued.

User Action

IJServer cluster start processing may have been interrupted because the IJServer cluster was stopped forcibly or because an Interstage Java EE Node Agent service was stopped. If another message was output at the same time, take action according to that message.

Take action according to the event log (Windows)/system log (Solaris/Linux) message that was output before this message, and investigate the cause of the IJServer cluster startup failure.

If no other message was output, use the `iscollectinfo` command to collect information for investigation. Send the information to a Systems Engineer.

ERROR: ISJEE_OM1023: Cluster unable to terminate

Explanation

Failed to stop the IJServer cluster.

System Action

Processing is continued.

User Action

Stopping the IJServer cluster by force or stopping the Interstage Java EE Node Agent service might interrupt IJServer cluster stop processing. If another message was output at the same time, take action according to that message.

Take action according to the event log (Windows)/system log (Solaris/Linux) message that was output before this message, and investigate the cause of the IJServer cluster stop failure.

If no other message was output, use the `iscollectinfo` command to collect information for investigation. Send the information to a Systems Engineer.

ERROR: ISJEE_OM1025: An error occurred in the output of the jvm.log. FILE={0}

Variable Information

{0}: Java VM log file

Explanation

Failed to output the Java VM log file.

System Action

If IJServer cluster start processing is in progress, IJServer cluster start processing is interrupted.

If the IJServer cluster has already started up, the IJServer cluster operation is continued.

User Action

Take the following action:

- Check that write authority for the file has been assigned.
- Check that write authority for the log output directory or parent directory has been assigned.
- Check that the right log output directory was set. If it is wrong, change it.
- Check whether the length of the full path for the log file has exceeded the maximum length of the path allowed by the OS. If it has, set a path that is within the maximum length allowed by the OS.
- Access to the file or directory may have failed because the disk is damaged. Check the disk.
- Because of a conflict with other processing, it may not be possible to access the disk temporarily. Reexecute processing.
- If there is insufficient available disk capacity, secure more.

INFO: ISJEE_OM1026: Log rotation was successful. FILE={0}

Variable Information

{0}: Java VM log file

Explanation

The Java VM log file was rotation.

ERROR: ISJEE_OM1027: Log rotation failed. FILE={0}

Variable Information

{0}: Java VM log file

Explanation

Failed to rotation the Java VM log file.

System Action

If IJServer cluster start processing is in progress, it is interrupted.

If the IJServer cluster has already started, the IJServer cluster operation continues. Rotation will be attempted the next time the log is output (when rotation type is log size) or the next time the log rotation time is reached (when rotation type is log collection time).

User Action

Take the following action:

- Check that write authority for the file has been assigned.
- Check that write authority for the log output directory or parent directory has been assigned.
- Access to the file or directory may have failed because the disk is damaged. Check the disk.
- Because of a conflict with other processing, access to the disk may temporarily be unavailable. There is no need to take action.

ERROR: ISJEE_OM1029: NodeAgent is not started.

Explanation

The Interstage Java EE Node Agent service is not running.

System Action

Processing is interrupted.

User Action

Start the Interstage Java EE Node Agent service and reexecute the operation.

ERROR: ISJEE_OM1030: There is an error for XML definition. TAG={0} ATTRIBUTE={1} VALUE={2}

Variable Information

{0}: Tag name

{1}: Attribute name

{2}: Value that was specified

Explanation

There is an error in the IJServer cluster definition information.

User Action

Check the IJServer cluster definition information, specify the right value and reexecute the operation.

ERROR: ISJEE_OM1031: Directory deletion failed. PATH={0}

Variable Information

{0}: Path

Explanation

Failed to delete the directory.

System Action

Processing is interrupted.

User Action

Take the following action:

- Check whether write authority has been assigned to the directory or parent directory.
- Access to the file or directory may have failed because the disk is damaged. Check the disk.
- Because of a conflict with other processing, it may not be possible to access the disk temporarily. Reexecute processing.

ERROR: ISJEE_OM1032: Unable to rotation the directory. PATH={0}

Variable Information

{0}: Path

Explanation

Failed to rotation the current directory.

System Action

Processing is interrupted.

User Action

Take the following action:

- Check whether write authority has been assigned to the directory or parent directory.
- Access to the file or directory may have failed because the disk is damaged. Check the disk.
- Because of a conflict with other processing, it may not be possible to access the disk temporarily. Reexecute processing.

ERROR: ISJEE_OM1033: Directory creation failed. PATH={0}

Variable Information

{0}: Path

Explanation

Failed to create the directory.

System Action

Processing is interrupted.

User Action

Take the following action:

- Check whether write authority has been assigned to the directory or parent directory.
- Access to the file or directory may have failed because the disk is damaged. Check the disk.
- Because of a conflict with other processing, it may not be possible to access the disk temporarily. Reexecute processing.

ERROR: ISJEE_OM1034: An error occurred in the output of the jvm.log. FILE={0} DETAIL={1}

Variable Information

{0}: Java VM log file
{1}: Error information

Explanation

Failed to output the Java VM log file.

System Action

If IJServer cluster start processing is in progress, IJServer cluster start processing is interrupted.

If the IJServer cluster has already started up, the IJServer cluster operation is continued.

User Action

Take the following action:

- Check that write authority for the file has been assigned.
- Check that write authority for the log output directory or parent directory has been assigned.
- Check that the right log output directory was set. If it is wrong, change it.
- Check whether the length of the full path for the log file has exceeded the maximum length of the path allowed by the OS. If it has, set a path that is within the maximum length allowed by the OS.
- Access to the file or directory may have failed because the disk is damaged. Check the disk.
- Because of a conflict with other processing, it may not be possible to access the disk temporarily. Reexecute processing.
- If there is insufficient available disk capacity, secure more.

ERROR: ISJEE_OM1035: No Message ID={0}

Variable Information

{0}: Message ID

Explanation

The message for which the output attempt was made has not been defined.

User Action

Write down the message, use the iscollectinfo command to collect information for investigation, and send the information to a Systems Engineer.

ERROR: ISJEE_OM1036: Internal error occurred. DETAIL={0}

Variable Information

{0}: Error information

Explanation

One of the following occurred:

1. The write to the server log failed if the error format is "code:2,message:{msg},{server_log}".
2. An error occurred in the internal processing.

System Action

Processing is interrupted.

User Action

- If the error format is "code:2,message:{msg},{server_log}":
 - Ignore this message if {message} is null, or java.io.InterruptedIOException or if stop was executed for the DAS Service, Node Agent Service, or IJServer cluster
 - Otherwise, take action according to the error information which is output.
- If an error occurred in the internal processing:
 - If another message was output at the same time, take action according to that message.
 - Otherwise, collect investigation information using the iscollectinfo command and contact Fujitsu technical support.

ERROR: ISJEE_OM1037: Node Agent ijna failed to startup. Please check the server log for more details.

Explanation

Failed to start the Interstage Java EE Node Agent service.

System Action

Processing is interrupted.

User Action

Refer to the Interstage Java EE Node Agent service JMX connector port number, and check whether it is a duplication of another service or functionality. For details on the Interstage Java EE Node Agent service JMX connector settings, refer to "[7.2 Interstage Java EE Node Agent Service Definition Items](#)" in the "List of Definition Items" chapter.

ERROR: ISJEE_OM1038: Timeout waiting for Node Agent ijna to go to {0} state.

Variable Information

{0}: Interstage Java EE Node Agent service operation status

Explanation

An Interstage Java EE Node Agent service crash or hangup may have occurred while Interstage Java EE Node Agent service start processing was in progress.

System Action

Processing is interrupted.

User Action

Use the iscollectinfo command to collect information for investigation. Send the information to a Systems Engineer.

ERROR: ISJEE_OM1039: Timed out. Failed to start the Node Agent ijna. Please check the server log for more details.

Explanation

Startup did not complete for all IJServer clusters even after 20minutes from the start of IJServer cluster automatic startup.

System Action

Processing is interrupted.

User Action

The number of IJServer clusters that were defined is great, therefore it may take time for IJServer cluster automatic startup. If any unnecessary IJServer clusters have been defined, delete them and then reexecute the command.

Alternatively, disable IJServer cluster automatic startup and then and then reexecute the command.

For details on IJServer cluster automatic startup, refer to "[7.2 Interstage Java EE Node Agent Service Definition Items](#)" in the "List of Definition Items" chapter.

ERROR: ISJEE_OM1040: Failed to stop Node Agent ijna.**Explanation**

The Interstage Java EE Node Agent service may have failed to stop.

System Action

Processing is interrupted.

User Action

Use the iscollectinfo command to collect information for investigation. Send the information to a Systems Engineer.

INFO: ISJEE_OM1041: The domain.xml has been backed up.**Explanation**

The Interstage Java EE DAS service definition file was backed up.

ERROR: ISJEE_OM1042: Cannot start the domain because the domain.xml was destroyed.**Explanation**

The definition file has invalid status, therefore the Interstage Java EE DAS service failed to start.

System Action

Processing is interrupted.

User Action

There might be insufficient Interstage Java EE DAS service Heap, or the address space upper limit might have been exceeded. For details on the action to take, refer to "6.18 Interstage Java EE DAS Service Heap Size and Address Space" in the "Chapter 6 Java EE Function Tuning".

If the problem persists, use the iscollectinfo command to collect information for investigation. Send the information to a Systems Engineer.

WARNING: ISJEE_OM1043: The domain.xml has been restored because the original file was destroyed.**Explanation**

The definition file has invalid status, therefore the definition file that has already been backed up is restored and the Interstage Java EE DAS service starts.

System Action

Interstage Java EE DAS service start processing is continued.

User Action

The definition file has invalid status, therefore the most recent definition operation may not be effective. Refer to the definition information to check whether the most recent definition operation is effective.

To investigate the cause of the invalid status of the definition file, use the iscollectinfo command to collect information for investigation. Send the information to a Systems Engineer.

INFO: ISJEE_OM1044: Server Instance was started up: NAME={0} CLUSTER={1} CLUSTER_STATUS={2}**Variable Information**

{0}: Server instance name

{1}: IJServer cluster name

{2}: Operational status of the IJServer cluster

Explanation

The server instance was started up.

INFO: ISJEE_OM1045: Server Instance was stopped: NAME={0} CLUSTER={1} CLUSTER_STATUS={2}

Variable Information

- {0}: Server instance name
- {1}: IJServer cluster name
- {2}: Operational status of the IJServer cluster

Explanation

The server instance was stopped.

INFO: ISJEE_OM1046: Server Instance was stopped forcibly: NAME={0} CLUSTER={1} CLUSTER_STATUS={2}

Variable Information

- {0}: Server instance name
- {1}: IJServer cluster name
- {2}: Operational status of the IJServer cluster

Explanation

The server instance was stopped forcibly.

ERROR: ISJEE_OM1047: Two Server Instances have begun processing under the same name: NAME={0}

Variable Information

- {0}: Server instance name

Explanation

Server instances of the same name are being started.

System Action

Processing for the server instance is aborted.

User Action

If the server instance name is incorrect, reexecute processing using a correct server instance name.
Additionally, if processing was executed for the IJServer cluster and the IJServer cluster name is incorrect, reexecute processing using a correct IJServer cluster name.

ERROR: ISJEE_OM1048: Two Server Instances of the same name are being started: NAME={0}

Variable Information

- {0}: Server instance name

Explanation

Server instances of the same name are being started.

System Action

Processing for the server instance is aborted.

User Action

If the server instance name is incorrect, reexecute processing using a correct server instance name.
Additionally, if processing was executed for the IJServer cluster and the IJServer cluster name is incorrect, reexecute processing using a correct IJServer cluster name.

ERROR: ISJEE_OM1049: Two Server Instances of the same name are being stopped: NAME={0}

Variable Information

{0}: Server instance name

Explanation

Server instances of the same name are being stopped.

System Action

Processing for the server instance is aborted.

User Action

If the server instance name is incorrect, reexecute processing using a correct server instance name.

Additionally, if processing was executed for the IJServer cluster and the IJServer cluster name is incorrect, reexecute processing using a correct IJServer cluster name.

ERROR: ISJEE_OM1050: Two Server Instances is stopped: NAME={0}

Variable Information

{0}: Server instance name

Explanation

The server instance has stopped.

System Action

Processing for the server instance is aborted.

User Action

If the server instance name is incorrect, reexecute processing using a correct server instance name.

Additionally, if processing was executed for the IJServer cluster and the IJServer cluster name is incorrect, reexecute processing using a correct IJServer cluster name.

ERROR: ISJEE_OM1051:Server Instance unable to start: NAME={0}

Variable Information

{0}: Server instance name

Explanation

Failed to start the server instance.

System Action

Processing continues.

User Action

- Since the IJServer cluster was stopped forcibly, or the Interstage Java EE Node Agent service was stopped, there is a possibility that server instance start processing was interrupted. If another message was output at the same time, take action according to that message.

Investigate the cause of the failure of the server instance to start according to the action in the event log (Windows)/system log (Solaris/Linux) message that was output before this message.

Refer to the Interstage Java EE Node Agent service server log file and check whether the message showing the cause of the failure was output.

If no other message was output, use the iscollectinfo command to collect information for investigation. Send the information to a Systems Engineer.

- The recovery procedure following the abnormal termination of the Interstage Java EE Node Agent service might not have been performed. Refer to "[14.2 Operational Errors](#)", "[Interstage Java EE Node Agent Abnormal End](#)" in the "[Chapter 14 Troubleshooting](#)" and perform the recovery procedure.

ERROR: ISJEE_OM1052:Server Instance unable to terminate: NAME={0}**Variable Information**

{0}: Server instance name

Explanation

Failed to stop the server instance.

System Action

Processing continues.

User Action

- If another message was output at the same time, take action according to that message.

Investigate the cause of the failure of the server instance to stop according to the action in the event log (Windows)/system log (Solaris/Linux) message that was output before this message.

Refer to the Interstage Java EE Node Agent service server log file and check whether the message showing the cause of the failure was output.

If no other message was output, use the iscollectinfo command to collect information for investigation. Send the information to a Systems Engineer.
- The recovery procedure following the abnormal termination of the Interstage Java EE Node Agent service might not have been performed. Refer to "[14.2 Operational Errors](#)", "[Interstage Java EE Node Agent Abnormal End](#)" in the "[Chapter 14 Troubleshooting](#)" chapter and perform the recovery procedure.

ERROR: ISJEE_OM1053:Two Server Instances of the same name are being reactivated automatically: NAME={0}**Variable Information**

{0}: Server instance name

Explanation

Server instances of the same name are being restarted automatically.

System Action

Processing continues.

User Action

If the server instance name is incorrect, reexecute processing using a correct IJServer cluster name.

ERROR: ISJEE_OM1057: There is a possibility that the definition file was destroyed.**Explanation**

If there is not enough free disk space, there is a possibility that the Interstage Java EE DAS service definition file was illegal.

System Action

Processing is interrupted.

User Action

When the following services are restarted, the definition file is recovered.

- Interstage Java EE DAS service

- Interstage Java EE Node Agent service

After restarting the above services, reexecute processing.

If there is not enough free disk space, then delete unnecessary files and take the action above.

Since there is a possibility that information about operations that were performed before this message was output has been lost, it is recommended that you check the operation content.

If the configuration file recovery is not successful even after the service is restarted, then restore can be executed to recover the environment if the IJServer cluster resources are backed up. If there are no IJServer cluster resource backups, execute the ijinit command to initialize the Java EE operating environment.

OM1061: Server instance {0} already exists in {1}.

Variable Information

- {0}: Server instance name
- {1}: Interstage Java EE Node Agent service resource directory

Explanation

The repository operation failed.

System Action

Processing is interrupted.

User Action

The repository operation failed. The instance directory in the repository might be illegal for the following reasons:

- The instance was deleted when a file in the repository was open in an editor.
- Another operation was performed during this one.

To restore the repository, follow the procedure below:

1. If the file in the repository is open in an editor, then close it.
2. Delete the target server instance.
3. Manually delete the target server instance directory.
4. Restart the Interstage Java EE Node Agent service.

OM1062: Directory {0} is not a valid server instance

Variable Information

- {0}: Server instance directory

Explanation

Failed to reference the repository.

System Action

Processing is interrupted.

User Action

The repository operation failed. Another operation was performed during this operation, therefore the instance directory that exists in the repository might be illegal.

To restore the repository, follow the procedure below:

1. Delete the target server instance.
2. Manually delete the target server instance directory.
3. Restart the Interstage Java EE Node Agent service.

OM1063: Could not delete server instance {0}. Server instance is {1}.**Variable Information**

{0}: Server instance name
{1}: Server instance status

Explanation

The repository operation failed.

System Action

Processing is interrupted.

User Action

The repository operation failed. Another operation was performed during this operation, therefore the instance directory that exists in the repository might be illegal.

To restore the repository, follow the procedure below:

1. Delete the target server instance.
2. Manually delete the target server instance directory.
3. Restart the Interstage Java EE Node Agent service.

OM1064: Could not delete server instance directory {0}**Variable Information**

{0}: Server instance directory

Explanation

The repository operation failed.

System Action

Processing is interrupted.

User Action

The repository operation failed. The instance directory that exists in the repository might be illegal for the following reasons:

- The instance was deleted when a file in the repository was open in an editor.
- Another operation was performed during this one.

To restore the repository, follow the procedure below:

1. If the file in the repository is open in an editor, then close it.
2. Delete the target server instance.
3. Manually delete the target server instance directory.
4. Restart the Interstage Java EE Node Agent service.

ERROR: ISJEE_OM1065: Failed in the initialization of service: DETAIL={0}**Variable Information**

{0}: Error information

Explanation

Service initialization processing failed for one of the following reasons:

- Failed to load the library.

System Action

Processing is interrupted.

User Action

Check the detail message displayed in the error information and take action.

ERROR: ISJEE_OM1066: An error occurred while getting instance status: NAME={0}

Variable Information

{0}: Server instance name

Explanation

An error occurred while obtaining the server instance status, therefore the status could not be obtained. The server instance may have hung up. Additionally, the server instance may also already have been started.

System Action

Processing is interrupted.

User Action

If this message is output, wait a while then check the server instance status using the asadmin command list-instances subcommand.

If the server instance status is displayed as "unknown" when the asadmin command list-instances subcommand is executed, and this problem cannot be resolved, the recommended recovery method is to stop the server instance by force then restart it.

WARNING: ISJEE_OM1068: Failed to synchronize with Interstage Java EE DAS service. NAME={0}

Variable Information

{0}: Server instance name or Node Agent name

Explanation

Synchronization of the repository failed.

System Action

Processing continues.

User Action

Synchronization of the repository failed, therefore it was not possible to update with the latest information. To update with the latest information, restart the Interstage Java EE Node Agent service.

Windows32/64

The desktop heap may be depleted.

If the problem is still not resolved, collect investigation information using the iscollectinfo command and contact Fujitsu technical support

13.45.2 OM1100 to OM1199

WARNING: ISJEE_OM1120: No response time exceeded monitoring time: CLUSTER={0} INSTANCE={1} PID={2}

Variable Information

{0}: IJServer cluster name

{1}: Server instance name

{2}: Process ID

Explanation

The response monitoring time was exceeded.

System Action

Processing continues.

User Action

The server instance may have hung up. If you have checked the process status and determined that it has hung up, either stop the process by force, or restart the process.

If the server instance has hung up, a JVM option set in the product internally may have been changed or deleted.

ERROR: ISJEE_OM1124: No response time exceeded monitoring time: CLUSTER={0} INSTANCE={1} PID={2}

Variable Information

{0}: IJServer cluster name

{1}: Server instance name

{2}: Process ID

Explanation

The response monitoring time was exceeded, therefore the server instance was stopped by force.

System Action

The server instance is stopped.

User Action

The server instance may have hung up. Refer to the message which was output before this message, and the event log/system log, and check the system load status and memory usage.

Additionally, the hangup may also have occurred in the application processing, therefore check whether there is a problem in the application based on the thread dump which is output to the IJServer cluster Java VM log (jvm.log).

13.45.3 OM2000 to OM2099

ERROR: ISJEE_OM2000: The other operation is already running: TARGET={0} OPERATION={1}

Variable Information

{0}: IJServer cluster name or server instance name

{1}: Operation name

Explanation

Another operation was executed, therefore the operation failed.

System Action

Processing is interrupted.

User Action

Wait until the operation that was executed completed, and then reexecute the operation. To identify the operation that was executed, refer to the variable information.

The following values are displayed as the variable information OPERATION.

OPERATION value	Operation that was executed
Start	IJServer cluster or server instance start
Stop	IJServer cluster or server instance stop

OPERATION value	Operation that was executed
forced stop	IJServer cluster or server instance forced stop

ERROR: ISJEE_OM2001: Cluster name is not detected.

Explanation

The operation failed because the IJServer cluster name was not specified.

System Action

IJServer cluster processing is interrupted.

User Action

Specify an IJServer cluster name and reexecute the operation.

ERROR: ISJEE_OM2002: Invalid cluster name is detected: CLUSTER={0}

Variable Information

{0}: IJServer cluster name

Explanation

The operation failed because an invalid IJServer cluster name was specified.

System Action

Processing is interrupted.

User Action

Specify a correct IJServer cluster name and then reexecute the operation.

For details on the character types that can be used for the IJServer cluster name, refer to "[7.4 Cluster Definition Items](#)" in the "[Chapter 7 List of Definition Items](#)".

ERROR: ISJEE_OM2003: Cluster already exists: CLUSTER={0}

Variable Information

{0}: IJServer cluster name

Explanation

The operation failed because the specified IJServer cluster name has already been defined.

System Action

Processing is interrupted.

User Action

Specify an IJServer cluster name that has not been defined, and reexecute the operation.

The list of IJServer clusters that have already been defined can be referenced using the following command.

```
> asadmin list-clusters
```

For details on names that can be specified as IJServer cluster names, refer to the explanation about the create-cluster subcommand operands of the asadmin command.

INFO: ISJEE_OM2005: Cluster has been created: CLUSTER={0}

Variable Information

{0}: IJServer cluster name

Explanation

The IIServer cluster was created.

INFO: ISJEE_OM2006: Cluster has been deleted: CLUSTER={0}

Variable Information

{0}: IIServer cluster name

Explanation

The IIServer cluster was deleted.

ERROR: ISJEE_OM2007: An error occurred while getting clusters status from NodeAgent: DETAIL={0}

Variable Information

{0}: Detail message

Explanation

Failed to get the IIServer cluster status from the Interstage Java EE Node Agent service.

System Action

Processing is interrupted.

User Action

Check whether the Interstage Java EE Node Agent service has started.

If it has, refer to the detail message and take action.

If the detail message is "can't read domain.xml", check that another operation has not been performed, and reexecute the operation. If there is still no change, use the iscollectinfo command to collect information for investigation. Send the information to a Systems Engineer.

If action cannot be taken from the detail message, use the iscollectinfo command to collect information for investigation. Send the information to a Systems Engineer.

ERROR: ISJEE_OM2008: Server Instance {0} must be stopped before that can be deleted.

Variable Information

{0}: Server instance name

Explanation

The server instance has not stopped, therefore the operation failed.

System Action

Processing stops.

User Action

Stop the server instance that was displayed in the variable information, then reexecute the operation.

ERROR: ISJEE_OM2009: Instance does not exist: {0}

Variable Information

{0}: Server instance name

Explanation

The server instance that was specified does not exist.

System Action

Processing stops.

User Action

Specify a server instance that exists, then reexecute processing.

To obtain the list of server instances, use the `asadmin` command `list-instances` subcommand.

ERROR: ISJEE_OM2010: Unable to connect to Node Agent {0}. Please check if this agent is up and running.

Variable Information

{0}: Node Agent name

Explanation

Failed to connect to the Interstage Java EE Node Agent service.

System Action

Processing stops.

User Action

- Start the Interstage Java EE Node Agent service, then reexecute processing. For details on how to start the Interstage Java EE Node Agent service, refer to the [10.14 ijnastat](#) commands.
- Check whether the Interstage Java EE Node Agent service terminated abnormally - if it has, then refer to "[14.2 Operational Errors](#)", "[Interstage Java EE Node Agent Abnormal End](#)" in the "[Chapter 14 Troubleshooting](#)" and perform the recovery procedure.
- If the IJServer cluster resources were imported, then make sure that the correct host name was specified in the `ijrestore` command `-h` option.

ERROR: ISJEE_OM2011: Node Agent {0} must be running before the instance {1} can be started or stopped.

Variable Information

{0}: Node Agent name

{1}: Server instance name

Explanation

The Interstage Java EE Node Agent service has not started, therefore the server instance operation failed.

System Action

Processing stops.

User Action

Start the Interstage Java EE Node Agent service, then reexecute processing.

For details on the method that is used to start the Interstage Java EE Node Agent service, refer to the [10.13 ijnastart](#) commands.

INFO: ISJEE_OM2012: Not all server instances in cluster {0} were successfully started.

Variable Information

{0}: IJServer cluster name

Explanation

No server instances were started, or some were not started.

System Action

Processing stops.

User Action

Refer to the message that was output at the same time and take action.

ERROR: ISJEE_OM2013: Not all server instances in cluster {0} were successfully stopped.

Variable Information

{0}: IJServer cluster name

Explanation

Failed to operate the IJServer cluster.

System Action

Processing stops.

User Action

- The IJServer cluster is running. Stop the IJServer cluster, then reexecute.
- There is a possibility that another user has performed an IJServer cluster operation. Wait for a while and then reexecute the command.
- The recovery procedure following the abnormal termination of the Interstage Java EE Node Agent service might not have been performed. Refer to "[14.2 Operational Errors](#)", "[Interstage Java EE Node Agent Abnormal End](#)" in the "[Chapter 14 Troubleshooting](#)" and perform the recovery procedure.

ERROR: ISJEE_OM2014: All server instances in cluster {0} were not started. {1}

Variable Information

{0}: IJServer cluster name

{1}: Error information

Explanation

Failed to start the IJServer cluster.

System Action

Processing stops.

User Action

Refer to the message that was output at the same time and take action.

- If {1} is 'Failed to retrieve RMIServer stub:javax.naming.NameNotFoundException: management/rmi-jmx-connector', then the IJServer cluster could not start because the status of the server instances could not be obtained. Another user might be operating the IJServer cluster. Wait for a few moments and reexecute the command.
- If "java.net.SocketException" was output to the error information, an error may have occurred in the network environment. Check whether there is an abnormality in the network environment.

INFO: ISJEE_OM2015: Cluster is already started: CLUSTER={0}

Variable Information

{0}: IJServer cluster name

Explanation

The IJServer cluster was already started.

System Action

Processing stops.

User Action

The recovery procedure following the abnormal termination of the Interstage Java EE Node Agent service might not have been performed. Refer to "14.2 Operational Errors", "Interstage Java EE Node Agent Abnormal End" in the "Chapter 14 Troubleshooting" and perform the recovery procedure.

INFO: ISJEE_OM2016: Cluster is already stopped: CLUSTER={0}

Variable Information

{0}: IJServer cluster name

Explanation

The IJServer cluster was already stopped.

System Action

Processing stops.

INFO: ISJEE_OM2017: The server instance has been created: INSTANCE={0}

Variable Information

{0}: Server instance name

Explanation

The server instance has been created.

INFO: ISJEE_OM2018: The server instance has been deleted: INSTANCE={0}

Variable Information

{0}: Server instance name

Explanation

The server instance has been deleted.

ERROR: ISJEE_OM2019: Cluster name {0} is not unique. There is a configuration, node agent, cluster, or server instance with this name.

Variable Information

{0}: IJServer cluster name

Explanation

The specified IJServer cluster name has already been used by another definition.

System Action

Processing stops.

User Action

Check that the specified IJServer name is not the same as the name of the following predefined items:

- IJServer cluster setting name
- IJServer cluster name
- Node Agent name
- Server instance name

Specify a name that has not been defined for the above items and then reexecute the operation.

ERROR: ISJEE_OM2020: Configuration {0} already exists.

Variable Information

{0}: Setting name

Explanation

The specified setting name was already predefined, therefore the operation failed.

System Action

Processing stops.

User Action

Specify a setting name that has not already been defined, and then reexecute the operation.

The predefined settings list can be referenced using the following command:

```
> asadmin list-configs
```

ERROR: ISJEE_OM2021: Server Instance {0} already exists.

Variable Information

{0}: Server instance name

Explanation

The operations failed because the specified server instance name was already predefined.

System Action

Processing stops.

User Action

Specify a server instance name that has not already been defined, and then reexecute the operation.

The predefined server instance list can be referenced using the following command:

```
> asadmin list-instances
```

ERROR: ISJEE_OM2022: Server Instance name {0} is not unique. There is a configuration, node agent, cluster, or server instance with this name.

Variable Information

{0}: Server instance name

Explanation

The specified server instance name has already been used by another definition.

System Action

Processing stops.

User Action

Check that the specified server instance name is not the same as the name of the following predefined items:

- IJServer cluster setting name
- IJServer cluster name
- Node Agent name

- Server instance name

Specify a name that has not been defined for the above items and then reexecute the operation.

ERROR: ISJEE_OM2023: Invalid Server Instance name is detected: INSTANCE={0}

Variable Information

{0}: Server instance name

Explanation

The operation failed because an illegal server instance name was specified.

System Action

Processing stops.

User Action

Check whether the server instance name contains characters that cannot be used for the server instance name, specify an appropriate server instance name and then reexecute the operation.

ERROR: ISJEE_OM2024: Cluster {0} does not exist.

Variable Information

{0}: IJServer cluster name

Explanation

The operation failed because the specified IJServer cluster does not exist.

System Action

Processing stops.

User Action

Specify an IJServer cluster that exists, and then reexecute the operation.

The predefined IJServer cluster list can be referenced using the following command:

```
> asadmin list-clusters
```

ERROR: ISJEE_OM2025: Cluster {0} already exists.

Variable Information

{0}: IJServer cluster name

Explanation

The operation failed because the specified IJServer cluster name was already predefined.

System Action

Processing stops.

User Action

Specify an IJServer cluster name that has not already been defined, and then reexecute the operation.

The predefined IJServer cluster list can be referenced using the following command:

```
> asadmin list-clusters
```

ERROR: ISJEE_OM2026: The name is illegal. Names are not allowed to have this String embedded in them: {0}

Variable Information

{0}: Character string that cannot be specified

Explanation

The operation failed because an illegal server instance name was specified.

System Action

Processing stops.

User Action

Specify a correct server instance name, and then reexecute the operation.

For details on the character types that can be used for the server instance name, refer to "[7.3 Server Instance Definition Items](#)" in the "[Chapter 7 List of Definition Items](#)".

ERROR: ISJEE_OM2027: The default configuration template {0} cannot be referenced by a shared server instance or shared cluster.

Variable Information

{0}: Default setting name

Explanation

The default setting name cannot be specified in the IJServer cluster settings.

System Action

Processing stops.

User Action

Specify a correct setting name and then reexecute processing.

The following names cannot be used in the IJServer cluster settings:

- server-config
- default-config

ERROR: ISJEE_OM2028: The configuration of the Domain Administration Server (named {0}) cannot be referenced by a shared server instance or shared cluster.

Variable Information

{0}: Interstage Java EE DAS service setting name

Explanation

The Interstage Java EE DAS service setting name cannot be specified in the IJServer cluster settings.

System Action

Processing stops.

User Action

Specify a correct setting name and then reexecute processing.

The following names cannot be used in the IJServer cluster setting name:

- server-config
- default-config

ERROR: ISJEE_OM2029: Configuration {0} does not exist.

Variable Information

{0}: Setting name

Explanation

The specified setting name does not exist, therefore the operation failed.

System Action

Processing stops.

User Action

Specify a setting that exists, and then reexecute the operation.

The predefined settings list can be referenced using the following command:

```
> asadmin list-configs
```

If this message is output when the IJServer clusters displayed by the asadmin command list-clusters subcommand are deleted, and the configurations output to the message are not displayed using the asadmin command list-configs subcommand, then it might mean that multiple users have executed the IJServer cluster/server instance create/delete operation at the same time, and hence only these IJServer cluster configurations were deleted.

In this case, delete the remaining IJServer clusters according to the procedure below:

1. Copy {0} to 'default-config':

```
> asadmin copy-config default-config ${config name}
```

2. Delete this IJServer cluster:

```
> asadmin delete-cluster ${IJServer name}
```

ERROR: ISJEE_OM2030: Cluster {0} contains no server instances and cannot be started or stopped.

Variable Information

{0}: IJServer cluster name

Explanation

The operation failed because a server instance has not been defined in the specified IJServer cluster.

System Action

Processing stops.

User Action

Create the server instance in the IJServer cluster, and then reexecute the operation.

For details on how to create the server instance, refer to the create-cluster subcommand.

ERROR: ISJEE_OM2031: The config {0} cannot be used as the source for creating another config

Variable Information

{0}: Setting name

Explanation

The Interstage Java EE DAS service settings cannot be specified in the copy source.

System Action

Processing stops.

User Action

Specify a correct setting name and then reexecute processing.

The Interstage Java EE DAS service settings (server-config) cannot be specified in the copy source.

ERROR: ISJEE_OM2032: The name {0} cannot be used as a configuration name

Variable Information

{0}: Setting name

Explanation

The operation failed because an illegal setting name was specified.

System Action

Processing stops.

User Action

Specify a correct setting name and then reexecute processing.

For details on the character types that can be used for the setting name, refer to "[7.8.2 Setting Definition Items](#)" in the "[Chapter 7 List of Definition Items](#)".

ERROR: ISJEE_OM2033: A Server with name {0} already exists.

Variable Information

{0}: Setting name

Explanation

The specified setting name has already been used for the server instance name.

System Action

Processing stops.

User Action

Specify a setting name that has not been used for the server instance name, and then reexecute processing.

The predefined server instance list can be referenced using the following command:

```
> asadmin list-instances
```

ERROR: ISJEE_OM2034: A Cluster with name {0} already exists.

Variable Information

{0}: Setting name

Explanation

The specified setting name has already been used for the IJServer cluster name.

System Action

Processing stops.

User Action

Specify a setting name that has not been used for the IJServer cluster name, and then reexecute processing.

The predefined IJServer cluster list can be referenced using the following command:

```
> asadmin list-clusters
```

ERROR: ISJEE_OM2035: A Node Agent with name {0} already exists.

Variable Information

{0}: Setting name

Explanation

The specified setting name has already been used for the Node Agent name.

System Action

Processing stops.

User Action

Specify a correct setting name and then reexecute processing.

The following names cannot be used in the IJServer cluster setting name:

- ijna

ERROR: ISJEE_OM2036: The default configuration template (named {0}) cannot be deleted.

Variable Information

{0}: Default setting name

Explanation

The default setting cannot be deleted.

System Action

Processing stops.

User Action

Specify a correct setting name and then reexecute processing.

The following settings cannot be deleted:

- server-config
- default-config

ERROR: ISJEE_OM2037: Configuration {0} is referenced by {1} and must be referenced by no server instances or clusters.

Variable Information

{0}: Setting name

{1}: IJServer cluster name or server instance name

Explanation

The specified setting was referenced by the IJServer cluster or the server instance.

System Action

Processing stops.

User Action

Settings that are referenced by the IJServer cluster or the server instance cannot be deleted.

To delete the setting, first delete the IJServer cluster or server instance that references the setting and then execute the operation.

ERROR: ISJEE_OM2038: Server instance name is not detected.

Explanation

The operation failed because the server instance name was not specified.

System Action

Processing stops.

User Action

Specify the server instance name, and then reexecute the operation.

ERROR: ISJEE_OM2039: Configuration name is not detected.

Explanation

The operation failed because the setting name was not specified.

System Action

Processing stops.

User Action

Specify the setting name, and then reexecute the operation.

ERROR: ISJEE_OM2040: Server Instance {0} is not part of a cluster.

Variable Information

{1}: Server instance name

Explanation

The specified server instance does not exist.

System Action

Processing stops.

User Action

Specify a server instance that exists, and then reexecute processing.

The predefined server instance list can be referenced using the following command:

```
> asadmin list-instances
```

If this message is output when the server instances displayed by the asadmin command list-instances subcommand are deleted, it means that multiple users created/deleted an IJServer cluster/server instance at the same time. Server instances that do not belong to the IJServer cluster might remain.

In this case, delete the instances according to the procedure below:

1. Stop the services in the following order:
 - Interstage Java EE Node Agent services
 - Interstage Java EE DAS services
2. Open the configuration file in an editor (first create a backup copy).

Windows32/64

```
[Java EE common directory]\domains\interstage\config\domain.xml
```

Solaris32/64 Linux32/64

```
[Java EE common directory]/domains/interstage/config/domain.xml
```

3. Delete the server instances according to the procedure below:

1. Search for the <servers> tag in the file.
2. Under <servers>, check the <server> tag "name" attribute and identify the tags for the target server instance.
3. Delete the <server> tags that identified in the previous step.

For example, to delete server instance "Instance001", delete the following tags:

```
<server config-ref="IJServer001-config" lb-weight="100" name="Instance001" node-agent-ref="ijna" start-  
instance-in-startup="true">  
~omitted~  
</server>
```

4. Save the file.
4. Verify the validity of the configuration file by executing the asadmin command verify-domain-xml subcommand.
If an error is output, then edit the file again.
5. Start the services in the following order:
 - Interstage Java EE DAS services
 - Interstage Java EE Node Agent services

ERROR: ISJEE_OM2041: The port specified by system-property {0} is invalid and must be a number between 0 and 65535.

Variable Information

{0}: System property name

Explanation

The specified system property value is outside the allowed value range.

System Action

Processing stops.

User Action

Specify 1 (min) to 65535 (max) for the system property value.

ERROR: ISJEE_OM2042: Port {0} on host {1} defined by system-property {2} is in use by server instance {3} as system-property {4}.

Variable Information

{0}: Specified port number

{1}: Host name

{2}: System property name

{3}: Server instance name

{4}: System property name

Explanation

The specified system property value has already been used by another server instance.

System Action

Processing stops.

User Action

Specify a correct system property value and then reexecute processing.

ERROR: ISJEE_OM2043: Property {0} does not exist in target {1}.**Variable Information**

{0}: System property name

{1}: Target name

Explanation

The specified system property does not exist.

System Action

Processing stops.

User Action

Specify a correct system property value and then reexecute processing.

ERROR: ISJEE_OM2044: An error occurred while getting cluster status: CLUSTER={0}**Variable Information**

{0}: IJServer cluster name

Explanation

An error occurred while obtaining the IJServer cluster status, therefore the status could not be obtained. The server instance contained in the IJServer cluster may have hung up.

System Action

Processing is interrupted.

User Action

If this message is output, wait a while then check the status of the server instance which is contained in the IJServer cluster using the asadmin command list-instances subcommand.

If the server instance status is displayed as "unknown" when the asadmin command list-instances subcommand is executed, and this problem cannot be resolved, the recommended recovery method is to stop the server instance by force then restart it.

ERROR: ISJEE_OM2045: Instance {0} is not running. Please start the instance first.**Variable Information**

{0}: Server instance name

Explanation

The specified server instance has not been started.

System Action

Processing is interrupted.

User Action

Start the specified server instance then reexecute processing.

ERROR: ISJEE_OM2046: Transaction monitoring level is OFF.**Explanation**

The transaction service monitoring level has been set to OFF, therefore the transaction information cannot be obtained.

System Action

Processing is interrupted.

User Action

Set the transaction service monitoring level to HIGH or LOW.

13.45.4 OM2100 to OM2199

ERROR: ISJEE_OM2100: The specified Web server does not exist. WebServerName={0}

Variable Information

{0}: Web server name

Explanation

The specified web server does not exist.

System Action

Processing is interrupted.

User Action

Check that the specified web server exists.

ERROR: ISJEE_OM2101: A IJServer(J2EE) and a cluster with the same name cannot use the same Web server. CLUSTER={0} Web server name={1}

Variable Information

{0}: IJServer cluster name

{1}: Web server name

Explanation

- The environment settings were configured so that an IJServer(J2EE) and an IJServer cluster with the same name are connected to the same web server.
- When the conditions are as follows, an attempt may have been made to generate an IJServer cluster with the same name as WorkUnit name of the web server connector definition:
 - The "Run web server and WorkUnit on the same machine" definition was set to "No", and
 - The web server and the IJServer cluster are run on the same machine

System Action

Processing is interrupted.

User Action

- Configure the environment settings so that the IJServer clusters with the same name each connect to a different web server.
- In the following cases, the IJServer cluster to be connected must be created before creating the web server connector connection destination information. As a result, a list of the IJServer clusters that were created in the web server connector connection destination information is displayed. Select the connection target IJServer cluster, and then change the definition.
 - The "Run web server and WorkUnit on the same machine" definition was set to "No", and
 - The web server and the IJServer cluster are run on the same machine

For details on the procedure, refer to "Running the Web Server and the IJServer Cluster on Different Machines" in the "Java EE Application Operation" chapter.

ERROR: ISJEE_OM2102: An invalid send/receive timeout was specified. Specify a value from 1 to 2147483647. Specified value={0}

Variable Information

{0}: Specified value

Explanation

The value that was specified for the send/receive timeout is invalid.

System Action

Processing is interrupted.

User Action

Specify a value of 1 to 2147483647 for the send/receive timeout.

ERROR: ISJEE_OM2103: An invalid maximum number of connections to the Web container was specified. Specify a value from 0 to 2048. Specified value={0}

Variable Information

{0}: Specified value

Explanation

The value that was specified for the maximum number of connections to the web container is invalid.

System Action

Processing is interrupted.

User Action

Check that the value that is specified for the maximum number of connections to the web container is within the acceptable range.

ERROR: ISJEE_OM2104: The specified cluster is not configured to use the Web server. CLUSTER={0}

Variable Information

{0}: Specified IJServer cluster

Explanation

- The specified IJServer cluster is not connected to the web server.
- The specified IJServer cluster does not exist.

System Action

Processing is interrupted.

User Action

Check that the specified IJServer cluster is connected to the web server.

ERROR: ISJEE_OM2105: The virtual host of the specified Web server is invalid. Virtual host={0}

Variable Information

{0}: The specified virtual host

Explanation

Possible causes are as follows:

- The virtual host name is not contained in the specified value. A host name is required for the virtual host that connects to the IJServer cluster.
- The specified virtual host does not exist.

System Action

Processing is interrupted.

User Action

Check the virtual host name.

ERROR: ISJEE_OM2106: The specified Web server virtual host does not exist. Web server={0} Virtual host={1}

Variable Information

{0}: Specified web server
{1}: Specified virtual host

Explanation

The specified web server virtual host does not exist.

System Action

Processing is interrupted.

User Action

Check that the virtual host exists.

ERROR: ISJEE_OM2107: The specified cluster does not exist. CLUSTER={0}

Variable Information

{0}: Specified IJServer cluster

Explanation

The specified IJServer cluster does not exist.

System Action

Processing is interrupted.

User Action

Check that the IJServer cluster exists.

ERROR: ISJEE_OM2108: An error occurred while updating web server connector definition file. detail={0}

Variable Information

{0}: Detail message

Explanation

Failed to update the web server connector environment settings file.

System Action

Processing is interrupted.

User Action

Fix the cause according to the message that was output to the detail message and take the following action:

- If the detail message includes "is20725: Failed to connect to the server Error information=%s"
The Interstage JMX service must be started. After the Interstage JMX service has started, reexecute processing.
- If this message was output when the server instance was added or deleted:
 - The target server instance was added or deleted
The web server connector environment settings file may not have been updated.

To update the web server connector environment settings file, use the Interstage Java EE Admin Console or the `asadmin` command to configure the settings so that the IJServer cluster and the web server are linked.

For details on linking the IJServer cluster and the web server, refer to "Connecting the Web Server and the IJServer Cluster" in the "Java EE Application Operation" chapter of the Java EE Operator's Guide.

- The target server instance was not added or deleted

Reexecute the operation in which the error occurred.

- If this message was output during other operations

Reexecute the operation in which the error occurred.

ERROR: ISJEE_OM2109: The specified cluster is not configured to use HTTP listener. CLUSTER={0}**Variable Information**

{0}: IJServer cluster name

Explanation

The HTTP listener for the specified IJServer cluster is not enabled, therefore linkage with the web server cannot be performed.

System Action

Processing is interrupted.

User Action

Enable the IJServer cluster HTTP listener, and then reexecute.

ERROR: ISJEE_OM2110: The specified cluster has no Server Instances. CLUSTER={0}**Variable Information**

{0}: IJServer cluster name

Explanation

The server instance has not been added to the specified IJServer cluster, therefore linkage with the web server cannot be performed.

System Action

Processing is interrupted.

User Action

Add the server instance to the IJServer cluster, and then reexecute.

13.45.5 OM2200 to OM2299

ERROR: ISJEE_OM2201: An error occurred while writing the monitor log. MONITOR ITEM={0} ERROR={1}**Variable Information**

{0}: Collection target

{1}: Error information

Explanation

An error occurred when the monitor logging log output was requested.

System Action

Monitor logging continues.

User Action

Remove the cause of the error that was output to error information {1}.

If the information shown below was output as the error information, an error may have occurred in processing to obtain the HTTP service performance information.

OM2998: Error in Interstage Java EE DAS. ERROR=/ by zero

INFO: ISJEE_OM2205: The Node Agent does not exist.

Explanation

The Interstage Java EE Node Agent service does not exist.

System Action

Processing is interrupted.

ERROR: ISJEE_OM2206: No value name specified = {0}

Variable Information

{0}: Definition item name

Explanation

The specified definition item name does not exist, therefore the attempt to get the value failed.

System Action

Processing is interrupted.

User Action

Check the specified definition item name and then reexecute the command. To check definition items that have already been defined, use the asadmin command get subcommand.

ERROR: ISJEE_OM2207: The resource is not found while undeploying. NAME={0}

Variable Information

{0}: Resource name

Explanation

The operation failed because the specified resource was deleted during update of the resource definition.

The resource definition may have been deleted by another user.

System Action

Processing is interrupted.

User Action

Check the resource that was defined. If any delete target resources remain, reexecute processing.

ERROR: ISJEE_OM2208: An error occurred while creating the JMS physical destination. Please check the server log for more information

Explanation

Failed to create the JMS physical storage destination.

System Action

Processing stops.

User Action

Check the startup status of the message broker. If the message broker has not started, start it and then reexecute the operation.

ERROR: ISJEE_OM2209: An error occurred while deleting the JMS physical destination. Please check the server log for more information

Explanation

Failed to delete the JMS physical storage destination.

System Action

Processing stops.

User Action

Check the startup status of the message broker. If the message broker has not started, start it and then reexecute the operation.

ERROR: ISJEE_OM2210: An error occurred while listing JMS physical destinations. Please check the server log for more information

Explanation

Failed to list the JMS physical storage destination.

System Action

Processing stops.

User Action

Check the startup status of the message broker. If the message broker has not started, start it and then reexecute the operation.

INFO: ISJEE_OM2211: Interstage monitoring is now enabled.

Explanation

Monitor logging was started.

ERROR: ISJEE_OM2212: An error occurred while closing the monitor log. MONITOR ITEM={0} ERROR={1}

Variable Information

{0}: Collection target
{1}: Error information

Explanation

An error occurred when the monitor logging log was closed.

System Action

Processing is interrupted.

User Action

Remove the cause of the error that was output to error information {1}.

13.45.6 OM2300 to OM2399

ERROR: ISJEE_OM2300: {0}: Config element {1} {2} is not found.

Variable Information

{0}: Operation type
{1}: Definition item name
{2}: Identifier for the definition item

Explanation

The definition item name or the identifier for the definition item does not exist.

System Action

Processing is interrupted.

User Action

Use the `asadmin` command `get` subcommand to check the specified definition item name or identifier for the definition item, then reexecute the command.

ERROR: ISJEE_OM2301: Invalid connection definition. Connector Module with connection definition ({0}) not found

Variable Information

{0}: Connection definition name

Explanation

The specified connection definition name does not exist.

System Action

Processing is interrupted.

User Action

Specify a correct connection definition name, and then reexecute the operation.

ERROR: ISJEE_OM2302: Invalid Resource Type: {0}

Variable Information

{0}: Resource type

Explanation

The resource creation failed due to one of the following:

- An illegal resource type was specified.
- The resource type has already been registered for a different resource.
- The resource type specified when the JMS connection factory was created and the Connector Connection Pool resource type registered are not the same.

System Action

Processing is interrupted.

User Action

Specify a correct resource type, and then reexecute the operation. Alternatively, change the name and reregister the resource.

ERROR: ISJEE_OM2303: TransactionsRecovery:There is no recovering server with name {0}

Variable Information

{0}: Server instance name

Explanation

The specified server instance does not exist. Alternatively, the transaction log directory cannot be specified when the server instance has 'running' status.

System Action

Processing is interrupted.

User Action

Check the following:

- Check whether the specified server instance exists. If the specified server instance does not exist, specify a server instance that exists then reexecute processing.
- If the server instance has 'running' status, reexecute the operation without specifying the transaction log storage directory.

ERROR: ISJEE_OM2304: TransactionsRecovery:txLogDir should be null for self recovering.

Explanation

Transaction recovery processing failed for one of the following reasons:

- A transaction cannot be recovered from a different server instance when the server instance has 'running' status.
- If the server instance has 'running' status, there is no need to specify the transaction log storage directory.

System Action

Processing is interrupted.

User Action

Check the server instance status then take the following action:

- If the server instance has 'running' status, reexecute the operation without specifying the alternate server instance.
- If the server instance has 'running' status, reexecute the operation without specifying the transaction log storage directory.

ERROR: ISJEE_OM2305: TransactionsRecovery:Transactions of running server <<{0}>> can not be recovered from another server <<{1}>>

Variable Information

{0}: Server instance name

{1}: Target server instance name

Explanation

A server instance that has 'running' status cannot recover transactions.

System Action

Processing is interrupted.

User Action

Stop the specified server instance, and then reexecute the operation.

ERROR: ISJEE_OM2306: Invalid transaction Id or Transaction is over or Transaction monitoring is not enabled. : ID[{0}]

Variable Information

{0}: Transaction ID

Explanation

The attempt to mark the transaction rollback failed for one of the following reasons:

- The specified transaction ID is invalid.
- The transaction is already closed.
- The monitor status is disabled.

System Action

Processing is interrupted.

User Action

Check that a valid transaction Id was specified, and that the transaction has not closed and is still valid, and then reexecute the operation.

ERROR: ISJEE_OM2307: Invalid characters in name: {0}.

Variable Information

{0}: User name

Explanation

The user that was specified contains illegal characters.

System Action

Processing is interrupted.

User Action

Specify a correct user, and then reexecute the operation.

For details on characters that can be used in the user name, refer to "[5.3.6 File Realm Settings](#)" in the "Java EE Function Security" chapter.

ERROR: ISJEE_OM2308: Invalid characters in group: {0}.

Variable Information

{0}: Group name

Explanation

The group name that was specified contains illegal characters.

System Action

Processing is interrupted.

User Action

Specify a correct group name, and then reexecute the operation.

For details on characters that can be used in the group name, refer to "[5.3.6 File Realm Settings](#)" in the "Java EE Function Security" chapter.

ERROR: ISJEE_OM2309: User {0} already exists.

Variable Information

{0}: User name

Explanation

The specified user was already predefined, therefore the operation failed.

System Action

Processing is interrupted.

User Action

Specify a user that has not already been defined, and then reexecute the operation.

The predefined user list can be referenced using the following command:

```
> asadmin list-file-users target
```

ERROR: ISJEE_OM2310: The resource "{0}" is shared by other instances or clusters. This Set operation is can only be performed at the domain level.

Variable Information

{0}: Resource name

Explanation

The specified resource is referenced by multiple server instances or IJServer clusters, therefore the setting of the definition item failed.

System Action

Processing is interrupted.

User Action

To change a definition item for a resource that is referenced by multiple server instances or IJServer clusters, do not specify the IJServer cluster name or server instance name in the definition item name.

If the definition item is set without the IJServer cluster name or server instance name in it, the content that was set is valid for all IJServer clusters and server instances that reference the resource.

ERROR: ISJEE_OM2311: Invalid Jvm Option {0}. Option must start with -.

Variable Information

{0}: JVM option

Explanation

An illegal JVM option was specified.

System Action

Processing is interrupted.

User Action

Specify a character string that starts with a hyphen ('-') for the JVM option, and then reexecute the operation.

ERROR: ISJEE_OM2312: {0} already exists: cannot add duplicate

Variable Information

{0}: Resource name

Explanation

The specified resource name was already predefined, therefore the operation failed.

System Action

Processing is interrupted.

User Action

Specify a resource name that has not already been defined, and then reexecute the operation.

The predefined resource list can be referenced using the following command:

```
> asadmin list-admin-objects target
> asadmin list-lifecycle-modules target
> asadmin list-jdbc-connection-pools
> asadmin list-jdbc-resources
> asadmin list-jms-resources
> asadmin list-jndi-resources
> asadmin list-javamail-resources
> asadmin list-custom-resources
> asadmin list-connector-connection-pools
> asadmin list-connector-resources
> asadmin list-admin-objects
```

```
> asadmin list-resource-adapter-configs
> asadmin list-resource-refs
```

ERROR: ISJEE_OM2313: Attribute "{0}" not found**Variable Information**

{0}: Definition item name (Option name)

Explanation

The specified definition item name does not exist.

System Action

Processing is interrupted.

User Action

Specify a correct definition item name, and then reexecute the operation.

ERROR: ISJEE_OM2314: No object matches the specified name "{0}"**Variable Information**

{0}: Definition item name

Explanation

The specified definition item name does not exist.

System Action

Processing is interrupted.

User Action

If the specified definition item name is invalid, specify a valid definition item then reexecute.

The specified definition item name may have been deleted by another operation. Check whether the specified definition item name exists.

If the specified definition item was used to restore resources from an unsupported previous version, the definition item name may not exist. In this case, refer to the Migration Guide, then take action.

ERROR: ISJEE_OM2315: Cannot change the read only attribute. Attribute={0}**Variable Information**

{0}: Definition item name

Explanation

The specified definition item name cannot be changed, therefore the operation failed.

System Action

Processing is interrupted.

User Action

This definition item cannot be changed. Use the default value for the operation.

ERROR: ISJEE_OM2317: The application "{0}" is shared by other instances or clusters. This Set operation is can only be performed at the domain level.**Variable Information**

{0}: Application name

Explanation

The setting of the definition item failed because the specified application is referenced by multiple server instances or IJServer clusters.

System Action

Processing is interrupted.

User Action

To change a definition item for an application that is referenced by multiple server instances or IJServer clusters, do not specify the IJServer cluster name or server instance name in the definition item name.

If the definition item is set without the IJServer cluster name or server instance name in it, the content that was set is valid for all IJServer clusters and server instances that reference the application.

ERROR: ISJEE_OM2318: The resource "{0}" is not referenced by this cluster "{1}". The attribute "{2}" can only be modified at the domain level.

Variable Information

{0}: Resource name

{1}: IJServer cluster name

{2}: Definition item name (Option name)

Explanation

The setting of the definition item failed because the specified resource is not referenced by the server instance or IJServer cluster.

System Action

Processing is interrupted.

User Action

Check that the reference relationship between the specified resource and the server instance or IJServer cluster is correct.

Check whether other users have performed a definition operation at the same time, then perform the operation again if necessary.

ERROR: ISJEE_OM2319: Missing expected dotted-name part

Explanation

An illegal definition item was specified.

System Action

Processing is interrupted.

User Action

Specify a correct definition item, and then reexecute the operation.

ERROR: ISJEE_OM2320: Illegal character "{0}"

Variable Information

{0}: Illegal character

Explanation

An illegal character was specified.

System Action

Processing is interrupted.

User Action

Specify a correct definition item, and then reexecute the operation.

ERROR: ISJEE_OM2321: Illegal to specify null as an attribute value**Explanation**

An invalid operand was specified.

System Action

Processing is interrupted.

User Action

In the operand, separate the definition item name and the value using '='.

For details on the values that can be specified, refer to the set subcommand.

ERROR: ISJEE_OM2322: Wildcard characters may not be used for 'set' ({0})**Variable Information**

{0}: Definition item name

Explanation

Wildcards (*) cannot be specified in the operand.

System Action

Processing is interrupted.

User Action

In the operand, separate the definition item name and the value using '='.

For details on the values that can be specified, refer to the set subcommand.

ERROR: ISJEE_OM2323: Invalid user or password**Explanation**

An invalid user name or password was specified.

System Action

Processing is interrupted.

User Action

Check the specified user and password, and then reexecute the operation.

If -passwordfile is specified in the password file, check that the characters are escaped where necessary.

If the .asadminpass file exists under the user home directory, then the login information saved might not be valid. Either delete the .asadminpass file, or reexecute the asadmin command login subcommand if necessary.

If the problem is not resolved, also refer to "[14.2.9 When a Message is Output Stating that Authentication has Failed](#)" in the "[Chapter 14 Troubleshooting](#)".

ERROR: ISJEE_OM2324: No such user [{0}].**Variable Information**

{0}: User name

Explanation

The specified user does not exist.

System Action

Processing is interrupted.

User Action

Specify a user that exists, and then reexecute the operation.

The predefined user list can be referenced using the following command:

```
> asadmin list-file-users target
```

ERROR: ISJEE_OM2325: The application "{0}" is not referenced by this cluster "{1}". The attribute "{2}" can only be modified at the domain level.

Variable Information

{0}: Application name

{1}: IJServer cluster name

{2}: Definition item name (Option name)

Explanation

The setting of the definition item failed because the specified application is not referenced by the server instance or IJServer cluster.

System Action

Processing is interrupted.

User Action

Check that the reference relationship between the specified application and the server instance or IJServer cluster is correct.

ERROR: ISJEE_OM2326: Resources: {0} "{1}" does not exist.

Variable Information

{0}: Resource type

{1}: JNDI name

Explanation

Cannot find the specified resource.

System Action

Processing is interrupted.

User Action

Check whether the specified resource exists.

INFO: ISJEE_OM2327: Rollback successful. : ID[{0}]

Variable Information

{0}: Transaction ID

Explanation

Marking of the transaction rollback succeeded.

System Action

Processing is continued.

ERROR: ISJEE_OM2328: Rollback unsuccessful. Transaction is allowed to be rolled back in Active or MarkedRollback state. : ID[{0}]

Variable Information

{0}: Transaction ID

Explanation

Marking of the transaction rollback failed.

System Action

Processing is interrupted.

User Action

Mark the rollback when the transaction status is Active or MarkedRollback.

ERROR: ISJEE_OM2329: Rollback unsuccessful. Thread is not allowed to rollback the transaction. : ID[{0}]

Variable Information

{0}: Transaction ID

Explanation

The rollback failed because there are no caller privileges.

System Action

Processing is interrupted.

User Action

Check the caller privileges.

ERROR: ISJEE_OM2330: Rollback unsuccessful. Unexpected error condition encountered by Transaction Manager. : ID[{0}]

Variable Information

{0}: Transaction ID

Explanation

The rollback failed due to an unexpected error.

System Action

Processing is interrupted.

User Action

Refer to the exception information that was output to the server log (server.log), and remove the cause of the error.

ERROR: ISJEE_OM2331: Resource {0} does not exist.

Variable Information

{0}: Resource name

Explanation

Cannot find the specified resource.

System Action

Processing is interrupted.

User Action

Check whether the specified resource exists.

ERROR: ISJEE_OM2332: Application {0} does not exist

Variable Information

{0}: Application name

Explanation

Cannot find the specified application.

System Action

Processing is interrupted.

User Action

Check whether the application exists.

If this message is output when the `asadmin` command `list-components` subcommand is executed, then {0} might be included in the list of applications. The application might have been deleted as a result of an operation of another user, however, so reexecute the command and check whether the application exists.

WARNING: ISJEE_OM2333: Destination Resource {0} does not contain a property called Name. So deriving a destination name {1} from the provided JNDI name {0}.

Variable Information

{0}: JNDI name

{1}: Physical send destination

Explanation

The physical send destination (Name property) was not specified when the JMS physical send destination resource was created, therefore the message shows that the JNDI name was used as the physical send destination (Name property).

System Action

Processing is interrupted.

User Action

To specify the physical send destination:

- Specify the JMS send destination resource already created, then create it again for the physical send destination (Name property).
- or -
- Using the `asadmin` command `set` subcommand, set the physical send destination (Name property).

ERROR: ISJEE_OM2334: Invalid ResourceAdapter: {0}

Variable Information

{0}: JNDI name

Explanation

The resource already registered is not a JMS resource.

System Action

Processing is interrupted.

User Action

- If this message was notified when the JMS connection factory was already created, either change the JNDI name or change the resource adapter for the Connector Connection Pool already registered to 'jmsra', then create the JMS connection factory again.
- If this message was notified when the JMS connection factory was already deleted, make sure that the specified JNDI name is a JMS resource JNDI name.

ERROR: ISJEE_OM2335: Cluster {0} could not be a dispatch target of itself.

Variable Information

{0}: IJServer cluster name

Explanation

The specified IJServer cluster name is the same as the IJServer cluster name of the EJB Dispatcher.

System Action

Processing is interrupted.

User Action

Specify another IJServer cluster, then reexecute.

ERROR: ISJEE_OM2337: Instance {0} is not a dispatch target of {1}.

Variable Information

{0}: Server instance name

{1}: Server instance name

Explanation

The specified server instance is not the server instance dispatch target server instance of the EJB Dispatcher.

System Action

Processing is interrupted.

User Action

Specify the dispatch target server instance of the EJB Dispatcher then reexecute.

ERROR: ISJEE_OM2338: Cluster {0} is not a dispatch target of {1}.

Variable Information

{0}: IJServer cluster name

{1}: IJServer cluster name

Explanation

The specified IJServer cluster is not the IJServer cluster dispatch target IJServer cluster of the EJB Dispatcher.

System Action

Processing is interrupted.

User Action

Specify the dispatch target IJServer cluster of the EJB Dispatcher then reexecute.

ERROR: ISJEE_OM2339: Cluster {0} is not an EJB dispatcher cluster, or needs to be restarted.

Variable Information

{0}: IJServer cluster name

Explanation

The specified server instance IJServer cluster is not the IJServer cluster of the EJB Dispatcher, or this IJServer cluster must be restarted.

System Action

Processing is interrupted.

User Action

Specify "ejb-dispatch" as the load balancer method for the specified server instance IJServer cluster, restart the IJServer cluster, and then reexecute.

ERROR: ISJEE_OM2340: {0}: Config element {1} is not found.

Variable Information

{0}: Parent definition item name
{1}: Definition item name

Explanation

The definition item name does not exist.

System Action

Processing is interrupted.

User Action

Check the definition item name then reexecute the command.

ERROR: ISJEE_OM2342: Cluster {0} is already a dispatch target of {1}.

Variable Information

{0}: IJServer cluster name
{1}: IJServer cluster name

Explanation

The specified IJServer cluster name is already one of the dispatch targets of the EJB Dispatcher.

System Action

Processing is interrupted.

User Action

Execute the following subcommand to check the EJB Dispatcher dispatch target status, then reexecute.

```
>asadmin list ${IJServer cluster name}.iiop-load-balance.ejb-dispatch-target
```

13.45.7 OM2400 to OM2499

WARNING: ISJEE_OM2401: The password for administrative user [security-realm: {0}] was changed successfully for immediate use on this domain administration server (DAS). Restart the domain, node agents [{1}] and server instances [{2}] in this domain, providing new password for it to take effect on the entire domain. All the server instances need to be restarted explicitly. Refer to documentation for details.

Variable Information

{0}: Realm name
{1}: Node Agent name
{2}: Server instance name

Explanation

The administrator user password was changed successfully.

To enable the new password, restart the Interstage Java EE DAS service, Interstage Java EE Node Agent service, and IJServer cluster.

System Action

Processing is continued.

User Action

Stop the Interstage Java EE DAS service, Interstage Java EE Node Agent service, and IJServer cluster, then restart them in the following order:

- Interstage Java EE DAS service
- Interstage Java EE Node Agent service
- IJServer cluster.

WARNING: ISJEE_OM2402: The password for administrative user [security-realm: {0}] was changed successfully for immediate use on this domain administration server (DAS). Restart domain and the node agents [{1}] in this domain, providing new password for it to take effect. Refer to documentation for details.

Variable Information

{0}: Realm name
{1}: Node Agent name

Explanation

The administrator user password was changed successfully.

To enable the new password, restart the Interstage Java EE DAS service and Interstage Java EE Node Agent service.

System Action

Processing is continued.

User Action

Stop the Interstage Java EE DAS service and Interstage Java EE Node Agent service, then restart them in the following order:

- Interstage Java EE DAS service
- Interstage Java EE Node Agent service.

OM2404: Incomplete configuration in file realm: file not specified.

Explanation

The file realm setting is invalid. The key file was not defined.

System Action

Processing is continued.

User Action

The key file (the realm additional property 'file') was not defined. Set this additional property.

If the target of this setting has already started, then it must be restarted for the setting to take effect.

OM2405: Incomplete configuration in file realm: login module not specified.

Explanation

The file realm setting is invalid. The login module was not defined.

System Action

Processing is continued.

User Action

The JAAS context (the realm additional property 'jaas-context') was not defined. Set this additional property.

If the target of this setting has already started, then it must be restarted for the setting to take effect.

OM2406: Incomplete configuration of ldap realm: url: {0} baseDN: {1} login module: {2}**Variable Information**

{0}: Directory name
{1}: Base DN
{2}: JAAS context

Explanation

The ldap realm setting is invalid.

System Action

Processing is continued.

User Action

Make sure that {0} (the realm additional property 'directory'), {1} (the realm additional property 'base-dn'), and {2} (the realm additional property 'jaas-context') are valid.

If the target of this setting has already started, then it must be restarted for the setting to take effect.

OM2407: User {0} not found.**Variable Information**

{0}: User ID

Explanation

User {0} does not exist.

System Action

Processing is continued.

User Action

Follow the procedure below:

- Make sure that the user ID is valid.
- Make sure that the condition setting for user search (search-filter) is valid.
- Make sure that the base DN setting (base-dn) is valid.
- Follow the action advised in the other messages and the exception information output to remove the cause of the error.

OM2408: LDAP bind failed for {0}.**Variable Information**

{0}: User DN

Explanation

The LDAP connection failed.

System Action

Processing is continued.

User Action

Follow the procedure below:

- Make sure that the password for the user ID is valid.
- Make sure that the condition setting for group search (group-search-filter) is valid.
- Follow the action advised in the other messages and the exception information output to remove the cause of the error.

OM2409: Unable to create keyfile: {0}**Variable Information**

{0}: Key file name

Explanation

Failed to create the key file.

System Action

Processing is continued.

User Action

Follow the procedure below:

- Make sure that the specified path exists.
- Make sure that the specified path does not contain characters restricted in the OS.
- Make sure that there are access privileges for the directory or key file on the specified path.

OM2410: OSRealm jaas-context not set.**Explanation**

The OS realm setting is invalid.

System Action

Processing continues.

User Action

Check whether the JAAS context (realm "jaas-context" additional property) setting is valid.

If the target of this setting has already started, it must be restarted for the setting to take effect.

13.45.8 OM2500 to OM2599

ERROR: ISJEE_OM2501: Failed to register Listener. DETAIL={0}{1}**Variable Information**

{0}: Exception information

{1}: Stack trace information

Explanation

Failed to register the listener.

System Action

Processing is interrupted.

User Action

Refer to the detail message displayed at the bottom part of the stack trace information, then take action.

Caused by: com.sun.enterprise.ee.admin.servermgmt.AgentException Failed to retrieve RMIServer stub: [detail message]

The output content of the detail message, and the action you should take, are explained below.

- If `javax.naming.ServiceUnavailableException` was output

```
javax.naming.ServiceUnavailableException [Root exception is java.rmi.ConnectException: Connection refused to host: host name; nested exception is: java.net.ConnectException: Connection refused: connect]
```

The connection from the Interstage Java EE Node Agent service to the IJServer cluster JMX connector failed. Check whether the IJServer cluster JMX connector settings are valid. Note that, If the IJServer cluster JMX connector settings were changed, the Interstage Java EE Node Agent service must be restarted.

- If `javax.naming.ConfigurationException` was output

```
javax.naming.ConfigurationException [Root exception is java.rmi.UnknownHostException: Unknown host: host name; nested exception is: java.net.UnknownHostException: host name]
```

The connection from the Interstage Java EE Node Agent service to the IJServer cluster JMX connector failed.

If resources were imported from another server, the host information of the export source may still be contained in the certificate. Check whether the certificate was reissued correctly. If any of the required information is lacking, take action.

- If SEC9000 was output

```
SEC9000: Login failed: javax.security.auth.login.LoginException: SEC9001: Failed file login for security realm name.
```

The connection from the Interstage Java EE Node Agent service to the IJServer cluster JMX connector failed.

If the file realm was selected for admin-realm, the IJServer cluster or Interstage Java EE Node Agent realm setting may be invalid. Check whether the file realm class name, JAAS context, or key file has been changed from the default value. If it has, restore the default value.

13.45.9 OM2600 to OM2699

WARNING: ISJEE_OM2601: Cannot find attribute "{0}" : {1}

Variable Information

{0}: Attribute name
{1}: Detail message

Explanation

Could not find the specified attribute.

System Action

Processing is continued.

User Action

No action is necessary if this message is output when the IJServer cluster is running and {0} is "dotted-name".

INFO: ISJEE_OM2602: AMX MBean {0} already exists (OK)

Variable Information

{0}: MBean name

Explanation

The MBean {0} has already been registered.

System Action

Processing is continued.

INFO: ISJEE_OM2604: J2EECluster ({0}) is registered.

Variable Information

{0}: MBean name

Explanation

The IJServer cluster {0} has been registered.

System Action

Processing is continued.

13.45.10 OM2900 to OM2999

ERROR: ISJEE_OM2990: Attempted function not supported. : [{0}]

Variable Information

{0}: Feature name

Explanation

The specified feature cannot be used in this edition.

System Action

Processing is cancelled.

User Action

Either use another feature, or investigate purchasing a higher edition.

ERROR: ISJEE_OM2996: Operation '{0}' failed in '{1}' Config Mbean. Target exception message: {2}

Variable Information

{0}: Operation name

{1}: Config MBean name

{2}: Detail message

Explanation

An error occurred in an operation in the Interstage Java EE DAS service.

System Action

Processing is interrupted.

User Action

If a detail message was output, refer to the detail message and establish the cause of the failure, then reexecute processing.

- If the operation name is "startCluster", "stopCluster", or "getClustersStatus", and the detail message "java.net.NoRouteToHostException" was output, there may be an abnormality in the network environment. Check whether there is an abnormality in the network environment.
- If this message is output to the Interstage Java EE Admin Console server instance window and the operation name "getSystemPropertyValue" is output to the variable information, then a system property of the settings for the IJServer cluster in which this server instance was created might have been deleted. Check the IJServer cluster settings system properties, and check whether the system property in {2} has been defined - if it has not, then reset the system properties definition in the IJServer cluster settings.
- If this message was output when the ijsmartsetup command was executed, take the following action:
 - If the operation name is "pingConnectionPool", refer to "Messages Output when the ijsmartsetup Command is Executed", "Database access verification failed.", "User Action", and then take the required action.

- If the operation name is "createClusterWithInstance", and "is20725" and the following content were output to the detail message, the Interstage JMX service may have stopped.

```
Failed to retrieve RMIServer stub: javax.naming.ServiceUnavailableException [Root exception is
java.rmi.ConnectException: Connection refused to host:[IP address or host name]; nested exception is:
java.net.ConnectException: ["Connection refused: connect"]]
```

Take the following action:

Windows32/64

From [Administrative Tools] - [Services] in Windows(R), start "Interstage Operation Tool".

Solaris32/64 **Linux32/64**

Execute the "/opt/FJSVisjmx/bin/isjmxstart" command without arguments.

- If a detail message was also output, refer to the detail message, remove the cause of the failure, and then reexecute processing.

If a detail message was not output, or action cannot be taken from the detail message, use the iscollectinfo command to collect information for investigation. Send the information to a Systems Engineer.

ERROR: ISJEE_OM2997: Unable to connect to admin-server at given host: [{0}] and port: [{1}]. Please check if this server is up and running and that the host and port provided are correct.

Variable Information

{0}: Host name
{1}: Port number

Explanation

Failed to connect to the Interstage Java EE DAS service.

System Action

Processing is interrupted.

User Action

Check the Interstage Java EE DAS service status. If the Interstage Java EE DAS service is not running, start it and reexecute processing.

If the Java EE common directory has been saved to the shared disk in cluster service linkage, then this message might be displayed when the operation is performed using the standby node. In this case, perform the operation using the active node.

ERROR: ISJEE_OM2998: Error in Interstage Java EE DAS. ERROR={0}

Variable Information

{0}: Detail error message

Explanation

An error occurred in the Interstage Java EE DAS service.

System Action

Processing is interrupted.

User Action

- Refer to the detail error message, remove the cause of the failure, and then reexecute processing.

- If 'Unexpected end of file from server' or 'Connection reset' was output to the detail error message, it might not be possible to connect to Interstage Java EE DAS service because multiple operations were executed at the same time. Wait for a few moments, and then reexecute processing.

There might also be insufficient Interstage Java EE DAS service Heap, or the address space upper limit might have been exceeded. For details on the action to take, refer to "Interstage Java EE DAS service Heap size and address space" in the "Java EE Function Tuning" chapter.

Additionally, if the connection destination Interstage Java EE DAS service operation manager HTTP listener security settings are enabled, the connection may have been attempted after false was specified for the secure option of the command. Set true for the secure option, then reexecute the operation.

- If 'Server returned HTTP response code: 403 ~' was output to the detail error message, the specified user might not belong to the asadmin group.

Use an administrator user ID that belongs to the asadmin group.

- If {0} is 'Server returned HTTP response code: 500 ~', then the asadmin command might have been executed during Interstage Java EE DAS service start. Make sure that the startup of the Interstage Java EE DAS service is complete, then reexecute the asadmin command.

- If "This operation failed, because ~ The actual error is: MBean instance not found:com.sun.appserv:type=category name,~,category=config" was output to the detail error message, a definition item name that does not exist may have been specified. Specify a valid definition item name then reexecute processing.

- If a session timeout occurred and login was performed in the child window, then click the home button to display the initial window and reexecute.

- If {0} is 'The client has been closed', then it means that the connection from the Interstage Java EE DAS service to the server instance might have closed temporarily. Wait for a few moments, then restart the Interstage Java EE DAS service.

- If "Bad version number in .class file." was output to the detail error message, the JDK/JRE and JDBC driver version combination may not be valid. Check the class path and environment variable settings. For details on the JDK/JRE and JDBC driver version combinations, refer to each database manual.

- If "SSL peer shut down incorrectly" was output to the detail error message, the SSL connection may have been attempted while the connection destination Interstage Java EE DAS service operation manager HTTP listener security settings were in a disabled state.

Enable the connection destination Interstage Java EE DAS service operation manager HTTP listener security settings, then reexecute the operation.

- If "is20725: Failed to connect to the server Error information=%s" is contained in the detail error message, it will be necessary to start the Interstage JMX service. After the Interstage JMX service has started, reexecute processing.

- If an error message is displayed during an Interstage Java EE Admin Console operation, another window operation may have been executed before the window display completes. Display the target window again from the tree view, wait until the display completes, then execute the window operation.

ERROR: ISJEE_OM2999: Error in Interstage JMX service. ERROR={0}

Variable Information

{0}: Detail error message

Explanation

An error occurred in the Interstage JMX service.

System Action

Processing is interrupted.

User Action

Refer to the message that is output at the same time to fix the cause of the failure, and reexecute processing.

If "Unexpected end of file from server" or "Connection reset" was output to the detail error message, there is a possibility that connection to the Interstage Operation Management service cannot be performed because multiple operations were executed at the same time. Wait for a while and then reexecute processing.

Additionally, there is a possibility that the physical memory of the Interstage Operation Management service is insufficient. Using the formula contained in the "Memory Usage" > "Physical Memory Usage", check whether the maximum limit for memory that can be assigned per single user process was exceeded. For details on the action to be taken when the maximum limit is exceeded, refer to "Memory Usage", "Physical Memory Usage" in the "Java EE Function Tuning" chapter.

13.45.11 OM3000 to OM3099

WARNING: ISJEE_OM3000: Delaying cluster stop process because an application is still processing.

Explanation

An application is still processing, therefore IJServer cluster stop processing is delayed.

WARNING: ISJEE_OM3001: Commencing cluster stop process as all applications have finished processing.

Explanation

All applications have finished processing, therefore IJServer cluster stop processing is started.

INFO: ISJEE_OM3002: The server application timer function has started.

Explanation

The server application timer functionality has started.

INFO: ISJEE_OM3003: The server application timer function has stopped.

Explanation

The server application timer functionality has stopped.

WARNING: ISJEE_OM3004: No response from the application: START={0} THREAD={1} APPLICATION={2}

Variable Information

{0}: Application processing start time
{1}: Processing thread information
{2}: Target application

Explanation

There is no response from the application.

System Action

Processing is continued.

User Action

- Refer to the thread dump that was output to the Java VM log (jvm.log) to check whether a deadlock or loop, or processing delay has occurred in the application.
- The value that was set for the timeout may be too low. Set an appropriate value (the envisaged processing time) for "maximum application processing time". For details on the "maximum application processing time", refer to "7.4 Cluster Definition Items" in the "List of Definition Items" chapter.

INFO: ISJEE_OM3005: The application which was carrying out the timeout returned: START={0} THREAD={1} APPLICATION={2}

Variable Information

{0}: Application processing start time
{1}: Processing thread information
{2}: Target application that timed out

Explanation

An application that exceeded the maximum application processing time returned.

User Action

If OM3004 was output before this message, refer to the explanation in [OM3004](#) and take action.

INFO: ISJEE_OM3006: An application timeout was notified to the NodeAgent runtime environment.

Explanation

An application timeout was notified to the Interstage Java EE Node Agent service runtime environment.

WARNING: ISJEE_OM3007: The application timeout could not be notified to the NodeAgent runtime environment.: CODE={0}

Variable Information

{0}: Internal information

Explanation

The application timeout could not be notified to the Interstage Java EE Node Agent service runtime environment.

System Action

Processing is continued.

User Action

Refer to the message and event log/system log that are output to the server log at the same time to check whether an error has occurred.

INFO ISJEE_OM3008: The running status of the cluster was notified to the NodeAgent runtime environment.

Explanation

The running status of the IJServer cluster was notified to the Interstage Java EE Node Agent service runtime environment.

WARNING ISJEE_OM3009: The running status of the cluster could not be notified to the NodeAgent runtime environment.: CODE={0}

Variable Information

{0}: Internal information

Explanation

The running status of the IJServer cluster could not be notified to the Interstage Java EE Node Agent service runtime environment.

System Action

Processing is continued.

User Action

- Refer to the message and event log/system log that was output to the server log at the same time to check whether an error has occurred. Also check the following:
 - If the log was checked and OM3010 was not output, there is no need to take action because the notice to the Interstage Java EE Node Agent service succeeded.

- If the log was checked and OM3008 was output after OM3010, there is no need to take action because the notice to the Interstage Java EE Node Agent service succeeded.
- If the above does not apply, refer to the Interstage Java EE Node Agent service server log and check whether a problem occurred.

WARNING ISJEE_OM3010: Failed to notify the running status of the cluster repeatedly. Output of the failure message has been blocked.

Explanation

Failed to notify the running status of the IJServer cluster repeatedly. Output of the message that notifies the failure is blocked.

System Action

Processing is continued. Output of the message that notifies the running status is blocked until the next time the notice is successful.

User Action

Refer to the message that was output at the same time.

WARNING: ISJEE_OM3011: Unexpected error.: DETAIL={0}

Variable Information

{0}: Detail error information

Explanation

An internal contradiction occurred.

System Action

- Processing is continued.
- The server application timer functionality is not running correctly.

User Action

Contact a Systems Engineer.

WARNING: ISJEE_OM3012: Failed to acquire information.: Definition={0} DETAIL={1}

Variable Information

{0}: Definition name

{1}: Detail error information

Explanation

Failed to get the definition information.

System Action

- Processing is continued.
- Server application timer functionality is not used.

User Action

Refer to the message that was output and check the definition information.

WARNING: ISJEE_OM3013: Internal error.: DETAIL={0}

Variable Information

{0}: Internal information

Explanation

An internal contradiction occurred.

System Action

- Processing is continued.
- Server application timer functionality is not used.

User Action

Contact a Systems Engineer.

13.45.12 OM3100 to OM3199

INFO: ISJEE_OM3100: Log rotation was successful. FILE={0}

Variable Information

{0}: Log file name

Explanation

Rotation of the log file ({0}) was successful.

ERROR: ISJEE_OM3101: Log rotation failed. FILE={0}

Variable Information

{0}: Log file name

Explanation

Failed to rotation the log file ({0}).

User Action

- If there is insufficient available disk capacity, secure more.
- If the right access authority was not set, change it so that the specified log file that is rotation can be accessed.
- If an I/O error occurred, check that the disk on which the log file is saved is running normally.
- Check whether a file with the same name as the log file name after rollover exists. If a file with the same name exists, delete or back up the file.

ERROR: ISJEE_OM3102: Failed to delete the log file. FILE={0}

Variable Information

{0}: Log file name

Explanation

Failed to delete the log file.

User Action

- If the right access authority was not set, change it so that the specified log file can be accessed.
- If an I/O error occurred, check that the disk on which the log file is saved is running normally.
- If another program has opened the log file, then close the file.
- Check whether an old generation log file has been locked.

ERROR: ISJEE_OM3103: Failed to open the log file. FILE={0}

Variable Information

{0}: Log file name

Explanation

Failed to open the log file ({0}).

User Action

- Check that the right log output directory was set. If it is wrong, change it.
- If there is insufficient available disk capacity, secure more.
- If the right access authority was not set, change it so that the specified log file can be accessed.
- Check whether the length of the full path for the log file has exceeded the maximum length of the path allowed by the OS. If it has, set a path that is within the maximum length allowed by the OS.
- If an I/O error occurred, check that the disk on which the log file is saved is running normally.
- Check whether the log file has been locked.

WARNING: ISJEE_OM3104: Failed to open the log file. FILE={0}

Variable Information

{0}: Log file name

Explanation

Failed to open the log file ({0}).

User Action

- Check that the right log output directory was set. If it is wrong, change it.
- If there is insufficient available disk capacity, secure more.
- If the right access authority was not set, change it so that the specified log file can be accessed.
- Check whether the length of the full path for the log file has exceeded the maximum length of the path allowed by the OS. If it has, set a path that is within the maximum length allowed by the OS.
- If an I/O error occurred, check that the disk on which the log file is saved is running normally.

ERROR: ISJEE_OM3105: Failed to initialize the log file. DETAIL={0}

Variable Information

{0}: Error detail

Explanation

Failed to initialize the log file.

User Action

- Check whether the log settings are valid. If the log settings are not valid, change them.
- In all other cases, follow the action advised in the message and error detail {0} output at the same time to remove the cause of the failure then reexecute processing.

ERROR: ISJEE_OM3106: Failed to download the log file. FILE={0}

Variable Information

{0}: Log file name

Explanation

Failed to download the log file ({0}).

Rotation processing for the log file that you tried to download might still be in progress.

User Action

Wait for a while, and then reexecute.

ERROR: ISJEE_OM3107: Failed to write messages. FILE={0}

Variable Information

{0}: Log file name

Explanation

Failed to output to the log file ({0}).

User Action

- If there is insufficient unused disk space, secure more.
- If an I/O error occurred, check whether the disk device on which the log file is saved is running normally.
- In all other cases, refer to the file name and exception information output at the same time to remove the cause of the failure.

WARNING: ISJEE_OM3108: Output of the log has been stopped. FILE={0}

Variable Information

{0}: Log file name

Explanation

The output to the log file ({0}) was stopped.

User Action

Refer to the description for the message that was output before this message in the Messages manual, take action, and then restart the Interstage Java EE DAS service or IJServer cluster.

13.45.13 OM3200 to OM3299

INFO: ISJEE_OM3201: Alert monitoring function is {0}.

Variable Information

{0}: Alert monitoring function operation mode

Explanation

The alert monitoring function operation mode was set.

When the alert monitoring function operation mode is "ON", the alert monitoring function is enabled. When the alert monitoring function operation mode is "OFF", the alert monitoring function is disabled.

WARNING: ISJEE_OM3202: Alert monitoring function is not available. ERROR={0}

Variable Information

{0}: Error information

Explanation

The alert monitoring function cannot be used.

Java VM that is handled by this product must be used in order for the alert monitoring function to be used.

System Action

Application processing is continued.

User Action

Refer to the error information and establish the cause of the failure.

If the problem is still not resolved, make a note of the error information and then contact a Systems Engineer.

WARNING: ISJEE_OM3203: An abnormality is found in Interstage installed environment. FILE={0} ERROR={1}

Variable Information

{0}: File name

{1}: Error information

Explanation

There is an abnormality in the Interstage installation environment, therefore the alert monitoring function cannot be used.

System Action

Application processing is continued.

User Action

Reinstall this product.

WARNING: ISJEE_OM3204: Alert monitoring function was detected the alert. CLUSTER={0} INSTANCE={1} MESSAGE={2}

Variable Information

{0}: IJServer cluster name

{1}: Server instance name

{2}: Detailed message

Explanation

An event was detected in which the alert monitoring function exceeds the alert for the alarm value.

Detailed message

The following detailed messages are output by the alert detected by the alert monitoring function.

The format of the time information contained in the detailed message is "year/month/day hours:minutes:seconds.milliseconds".

Detailed message	Meaning of the warning	Conditions of occurrence
There are possibilities of OutOfMemoryError because of the lack of the memory: TIME={0} SIZE={1} TIME: Time of occurrence SIZE: Rough estimate of amount added to Heap area (Unit: Bytes) (*1)	The Heap area is insufficient, therefore there is a danger that OutOfMemoryError will occur.	When the Heap usage rate immediately after Full GC is greater than 95%. Alternatively, when the Heap usage rate immediately after Full GC is greater than 90%, AND the Heap size used since the occurrence of the previous Full GC has increased continuously for at least 3 times.
There are possibilities of OutOfMemoryError because of the lack of the Perm region: TIME={0} SIZE={1} TIME: Time of occurrence SIZE: Rough estimate of amount added to Perm area (Unit: Bytes) (*1)	The Perm area is insufficient, therefore there is a danger that OutOfMemoryError will occur.	When the Perm area usage amount is greater than 90%.
OutOfMemoryError warning is occurred because the Perm region is exhausted: TIME={0} SIZE={1} TIME: Time of occurrence	The Perm area usage amount is exhausted, therefore there is a danger	When the increase in the Perm area usage amount since the previous measurement is greater than 10 per cent of the overall Perm area, AND the Perm

Detailed message	Meaning of the warning	Conditions of occurrence
SIZE: Perm area increased amount (Unit: Bytes)	that OutOfMemoryError will occur.	area usage rate that is assumed for the next increase of the same percentage is greater than 90%. Note that the value which is notified for "SIZE" is the size (increased amount) which will be assumed for increases of the same rate.
It takes long time to do the garbage collections many times: TIME={0} AVERAGE={1} TIME: Time of occurrence AVERAGE: Average time for Full GC for the previous three times (in milliseconds)	Full GC continuously takes a long time.	When the average value for Full GC time for the previous three times is longer than 5 seconds.
Inefficient garbage collections are run with the short intervals: TIME={0} WEIGHT={1} TIME: Time of occurrence WEIGHT: Usage rate of the old generation immediately before Full GC (in %)	Inefficient Full GC occurs in short intervals.	When the Full GC interval time for the previous three times is shorter than 20 seconds, AND the usage rate of the Old generation area immediately before Full GC is less than 65%.
The garbage collections are run with the short intervals because of the lack of the memory: TIME={0} SIZE={1} TIME: Time of occurrence SIZE: Rough estimate of amount added to Heap area (Unit: Bytes) (*1)	The Heap area is insufficient, therefore Full GC occurs in short intervals.	When the Full GC interval time for the previous three times is shorter than 20 seconds, AND the Heap usage rate immediately after Full GC is greater than 65%.
System.gc() are run with the short intervals: TIME={0} INTERVAL={1} TIME: Time of occurrence INTERVAL: Interval time for the java.lang.System.gc() method and the java.lang.Runtime.gc() method (in milliseconds)	The java.lang.System.gc() method and the java.lang.Runtime.gc() method occur in short intervals.	When the Full GC interval time for the previous three times is shorter than 20 seconds, AND the frequency of Full GC that occurs because of the java.lang.System.gc() method and the java.lang.Runtime.gc() method is high.
The garbage collections are run with the short intervals: TIME={0} INTERVAL={1} TIME: Time of occurrence INTERVAL: Full GC interval time (in milliseconds)	Full GC occurs in short intervals.	When the Full GC interval time for the previous three times is shorter than 20 seconds.

*1 To avoid warnings, it will be necessary to increase the Heap or Perm area size when the warning occurs. The value which is notified for "SIZE" is the rough estimate increased amount for this.

Note that the value which is notified for "SIZE" is only a rough estimate. In fact, this may differ from the required increased amount, therefore tune accurately according to the insufficient resources information.

System Action

Application processing is continued.

User Action

This message may be output when the WorkUnit starts up or the load is temporarily high. Tune the Java VM where necessary. For details, refer to ["6.17 Action when a Warning is Generated by the Alert Monitoring Function"](#) in the "Java EE Function Tuning" chapter.

WARNING: ISJEE_OM3205: Alert monitoring function is stopped due to the unexpected error. CODE={0} ERROR={1}

Variable Information

{0}: Error information 1
{1}: Error information 2

Explanation

An unexpected error occurred, therefore alert monitoring function is stopped.

System Action

Application processing is continued.
Alert monitoring function is stopped. After this warning is output, alert monitoring function is disabled.

User Action

Refer to the error information and establish the cause of the failure.
If the problem is still not resolved, make a note of the error information and then contact a Systems Engineer.

13.45.14 OM4000 to OM4099

INFO: ISJEE_OM4000: Cluster resource backup has started.

Explanation

Backup of IJServer cluster resources has started.

INFO: ISJEE_OM4001: Cluster resource backup completed normally.

Explanation

Backup of IJServer cluster resources ended normally.

ERROR: ISJEE_OM4002: Cluster resource backup ended abnormally.

Explanation

Backup of IJServer cluster resources ended abnormally.

System Action

Processing is interrupted.

User Action

The message that details the cause is output before this message. Refer to the message that was output before this message to fix the error.

INFO: ISJEE_OM4003: Restore of cluster resources has started.

Explanation

Restore of IJServer cluster resources has started.

INFO: ISJEE_OM4004: Restore of cluster resources is complete.

Explanation

Restore of IJServer cluster resources ended normally.

ERROR: ISJEE_OM4005: Restore of the cluster resources is ended abnormally.

Explanation

Restore of IIServer cluster resources ended abnormally.

System Action

Processing is interrupted.

User Action

The message that details the cause is output before this message. Refer to the message that was output before this message to fix the error.

ERROR: ISJEE_OM4006: The specified directory does not exist. dir={0}

Variable Information

{0}: The directory specified in the -d option

Explanation

The specified directory does not exist.

System Action

Processing is interrupted.

User Action

Check that the specified directory exists.

ERROR: ISJEE_OM4007: You do not have the authority required to execute this command.

Explanation

There is no authority to execute the command.

System Action

Processing is interrupted.

User Action

Reexecute the command as a user that has administrator authority.

ERROR: ISJEE_OM4008: Cluster resources have already been backed up to the specified directory. dir={0}

Variable Information

{0}: The directory specified in the -d option

Explanation

The IIServer cluster resources have already been backed up to the specified directory.

System Action

Processing is interrupted.

User Action

Either specify a different directory to the specified directory, or delete the IIServer cluster resources under the specified directory or move them.

ERROR: ISJEE_OM4009: There are no cluster resources in the specified directory. dir={0}

Variable Information

{0}: The directory specified in the -d option

Explanation

There are no IIServer cluster resources in the specified directory.

System Action

Processing is interrupted.

User Action

Specify the directory that the IIServer cluster resources were backed up in the -d option.

ERROR: ISJEE_OM4010: Insufficient memory. detail={0}

Variable Information

{0}: Detail information

Explanation

There is insufficient memory. Either the system real memory/swap is insufficient, or the number of file descriptors is insufficient.

System Action

Processing is interrupted.

User Action

Either close unnecessary applications, or increase the number of file descriptors that can be used in the system.

INFO: ISJEE_OM4011: Extraction of cluster investigation data has started.

Explanation

Extraction of IIServer cluster investigation data has started.

INFO: ISJEE_OM4012: Extraction of cluster investigation data is complete.

Explanation

Extraction of IIServer cluster investigation data ended normally.

ERROR: ISJEE_OM4013: Extraction of cluster investigation data ended abnormally.

Explanation

Extraction of IIServer cluster investigation data ended abnormally.

System Action

Processing is interrupted.

User Action

The message that details the cause is output before this message. Refer to the message that was output before this message to fix the error.

ERROR: ISJEE_OM4014: Error in usage of command.

Explanation

The command is used wrongly.

System Action

Processing is interrupted.

User Action

Specify the right option and reexecute processing.

ERROR: ISJEE_OM4015: Unable to create directory. path={0}**Variable Information**

{0}: Directory path name

Explanation

Failed to create the directory.

System Action

Processing is interrupted.

User Action

- Check whether write authority for the top directory in {0} has been set for the user that executed the command. If it has not, assign write authority for the user that executes the command.
- Make the backup destination directory name shorter and reexecute the command.
- Check that there is sufficient available disk capacity.

ERROR: ISJEE_OM4016: Unable to copy file. src={0} dest={1} detail={2}**Variable Information**

{0}: Copy source file path name

{1}: Copy destination file path name

{2}: Detail information

Explanation

Failed to copy the file.

System Action

Processing is interrupted.

User Action

- Check whether read authority for the file in {0} has been set for the user that executed the command.
- Check whether write authority for the top directory in {0} has been set for the user that executed the command.
- Check that there is sufficient available disk capacity.
- Make the backup destination directory name shorter and reexecute the command.
- Fix the cause according to the detail information in {2}.

ERROR: ISJEE_OM4017: Unable to check authority. detail={0}**Variable Information**

{0}: Detail information

Explanation

Failed to check the execution authority.

System Action

Processing is interrupted.

User Action

- Either close unnecessary applications, or increase the number of file descriptors that can be used in the system.
- An error number for system call will be shown in this message. Contact the system administrator.

ERROR: ISJEE_OM4018: System file does not exist. path={0}**Variable Information**

{0}: File path name

Explanation

The system file that is used to configure this product does not exist.

System Action

Processing is interrupted.

User Action

- Check whether read authority for the file in {0} has been set for the user that executed the command.
- Reinstall this product.

ERROR: ISJEE_OM4020: Cluster investigation data already exists.**Variable Information**

{0}: The directory specified in the -d option

Explanation

The IJServer cluster investigation data is already in the specified directory.

System Action

Processing is interrupted.

User Action

- Specify a different directory to the specified directory.
- Either delete the IJServer cluster investigation data under the specified directory or move them.

ERROR: ISJEE_OM4021: Unable to copy file attributes. src={0} dest={1} detail={2}**Variable Information**

{0}: Copy source file
{1}: Copy destination file
{2}: Detail information

Explanation

Failed to copy the file attributes.

System Action

Processing is interrupted.

User Action

- **Windows32/64**
If {2} is "errno=3 func=CreateFile" or "errno=206 func=CreateFile", copying may have failed because the copy target path has exceeded the maximum length for the system.
If this message is output by the backup command, specify a short copy target path.
If this message is output by the restore command, use the ijinit command to shorten the Java EE common directory path.
If the problem persists, collect investigation information using the iscollectinfo command and contact Fujitsu technical support.
- Either close unnecessary applications, or increase the number of file descriptors that can be used in the system.

- An error number for system call will be shown in this message. Contact the system administrator.

ERROR: ISJEE_OM4022: Environment variable does not exists. name={0}

Variable Information

{0}: Environment variable name

Explanation

The environment variable has not been set.

System Action

Processing is interrupted.

User Action

When {0} is IS_HOME, set the installation destination for this product in the IS_HOME system environment variable.

ERROR: ISJEE_OM4023: Failed to get the common Java information. func={0} errno={1}

Variable Information

{0}: Internal information

{1}: Error number

Explanation

Failed to get the Java information.

System Action

Processing is interrupted.

User Action

Reinstall JDK.

ERROR: ISJEE_OM4024: Required package is not installed.

Explanation

A mandatory package has not been installed.

System Action

Processing is interrupted.

User Action

Reinstall JDK.

ERROR: ISJEE_OM4025: Unable to read file. path={0} detail={1}

Variable Information

{0}: File path name

{1}: Detail information

Explanation

Failed to read the file.

System Action

Processing is interrupted.

User Action

- Check whether read authority for the file in {0} has been set for the user that executed the command.
- Fix the cause according to the detail information in {1}.

ERROR: ISJEE_OM4026: Unable to write file. path={0} detail={1}

Variable Information

{0}: File path name
{1}: Detail information

Explanation

Failed to write the file.

System Action

Processing is interrupted.

User Action

- Check whether write authority for the top directory in {0} has been set for the user that executed the command.
- Check that there is sufficient available disk capacity.
- Fix the cause according to the detail information in {1}.

ERROR: ISJEE_OM4027: Unable to read backup resources. path={0} detail={1}

Variable Information

{0}: Path name
{1}: Detail information
Note: Detail information may not always be output.

Explanation

Failed to read the backup resources. The backup resources may be damaged.

System Action

Processing is interrupted.

User Action

Back up the IJServer cluster resources again.

ERROR: ISJEE_OM4028: Interstage installation path is different from the backup resources.

Explanation

The installation directory for this product is different from the path recorded for the backup resources.

System Action

Processing is interrupted.

User Action

Specify the export source machine or pre-backup directory as the installation directory for this product, then reinstall this product.

ERROR: ISJEE_OM4030: Unable to delete file or directory. path={0}

Variable Information

{0}: File or directory path name

Explanation

Failed to delete the file or directory.

System Action

Processing is interrupted.

User Action

- Check whether the IJServer cluster is running.
- Check whether the following services are running.
 - Interstage Java EE Node Agent service
 - Interstage Java EE DAS service
 - Message broker (*1)
 - Java DB
- Check whether write authority for the file or directory in {0} and the top directory has been set for the user that executed the command.

*1 If the message broker cannot be stopped, refer to "Abnormalities in JMS Development/Operations", "Cannot stop the message broker" in the "Troubleshooting" chapter, and then stop it.

ERROR: ISJEE_OM4031: Unable to read system file. path={0} detail={1}

Variable Information

{0}: Path name

{1}: Detail information

Explanation

Failed to read to a system file that is used to configure this product. The file may be damaged.

System Action

Processing is interrupted.

User Action

- If the file name in {0} is domain.xml, fix domain.xml according to the detail information in {1}.
- Reinstall this product. Detail information may not always be output.

ERROR: ISJEE_OM4032: Interstage Java EE DAS service is running.

Explanation

An Interstage Java EE DAS service is running.

System Action

Processing is interrupted.

User Action

Stop the Interstage Java EE DAS service and then reexecute.

ERROR: ISJEE_OM4033: Interstage Java EE Node Agent service is running.

Explanation

An Interstage Java EE Node Agent service is running.

System Action

Processing is interrupted.

User Action

Stop the Interstage Java EE Node Agent service and then reexecute.

This message may also be output when Interstage Java EE Node Agent service does not start up following a machine crash or the abnormal end of the Interstage Java EE Node Agent service. In these cases, start the Interstage Java EE Node Agent service and then stop it again.

ERROR: ISJEE_OM4034: The IP address/host name configuration file does not exist. path={0}

Variable Information

{0}: Path of the specified IP address/host name configuration file

Explanation

The specified IP address/host name configuration file does not exist.

System Action

Processing is interrupted.

User Action

- Check that the path specified in the -f option is correct.
- Check that the IP address/host name configuration file exists.

ERROR: ISJEE_OM4035: The content of the IP address/host name configuration file is incorrect. path={0} detail={1}

Variable Information

{0}: Path of the specified IP address/host name configuration file

{1}: Content of the line containing the error

Explanation

The content of the specified IP address/host name configuration file is incorrect.

System Action

Processing is interrupted.

User Action

- Check that the content of the IP address/host name configuration file is correct.
- Check that the path specified in the -f option is correct.

ERROR: ISJEE_OM4036: Failed to read the IP address/host name configuration file. path={0} detail={1}

Variable Information

{0}: Path of the specified IP address/host name configuration file

{1}: Error detail

Explanation

Failed to read the IP address/host name configuration file. Possible causes are as follows:

- Read privileges for the runtime user were not set in the IP address/host name configuration file.
- An I/O ERROR occurred.

System Action

Processing is interrupted.

User Action

- Check the IP address/host name configuration file privileges.
- Follow the action advised in the output message.

ERROR: ISJEE_OM4037: Failed to convert the IP address/host name. path={0} detail={1}

Variable Information

{0}: Path of the specified IP address/host name configuration file
{1}: Error detail

Explanation

Failed to convert the IP address/host name. Possible causes are as follows:

- An I/O ERROR occurred.
- The IJServer cluster backup resources are corrupt.

System Action

Processing is interrupted.

User Action

- Follow the action advised in the output message.
- Back up the IJServer cluster backup resources again, and then reexecute.

ERROR: ISJEE_OM4038: Message Queue Broker is running.

Explanation

The message broker is running.

System Action

Processing is interrupted.

User Action

Stop the message broker.



The backup/restore command does not check whether the processes shown below are running. Stop the process before executing the backup/restore command.

- Message brokers which is started not using the service startup method

WARNING: ISJEE_OM4044: Unable to check running services.

Explanation

Failed to check the service startup status in the restoring of the IJServer cluster resources.

System Action

The restore destination environment may be damaged, therefore restore processing is continued and recovery attempted.

User Action

There is no need to take action according to this message or the message that was output before this message.

If an error message is output after this message, establish the cause of the error according to the message that is output.

ERROR: ISJEE_OM4099: An unexpected error occurred. detail={0}**Variable Information**

{0}: Detail information

Explanation

An unexpected error occurred.

System Action

Processing is interrupted.

User Action

Use the iscollectinfo command to collect information for investigation. Send the information to a Systems Engineer.

13.45.15 OM4100 to OM4199

ERROR: ISJEE_OM4100: Environment variable does not exists. name={0}**Variable Information**

{0}: Environment variable name

Explanation

An environment variable was not set.

System Action

Processing is interrupted.

User Action

If {0} is IS_HOME, set the installation destination of this product for the IS_HOME system environment variable.

ERROR: ISJEE_OM4101: Unable to lock file. detail={0}**Variable Information**

{0}: Detail information

Explanation

Failed to lock the file.

System Action

Processing is interrupted.

User Action

- Check whether write privileges were set for the user that executed the command for the file shown in the detail information in {0}.
- Based on the detail information in {0}, remove the cause of the error.

ERROR: ISJEE_OM4102: Unable to read system file. path={0} detail={1}**Variable Information**

{0}: File path name

{1}: Detail information

Explanation

Failed to read the a system file that comprises this product. The file might be corrupt.

System Action

Processing is interrupted.

User Action

Based on the detail information in {1}, remove the cause of the error.

ERROR: ISJEE_OM4103: Error in usage of command.

Explanation

The way in which the command was used is incorrect.

System Action

Processing is interrupted.

User Action

Specify the option correctly, and then reexecute processing.

ERROR: ISJEE_OM4104: Unable to update file. path={0} detail={1}

Variable Information

{0}: File path name

{1}: Detail information

Explanation

Failed to update the file.

System Action

Processing is interrupted.

User Action

- Check whether write privileges were set for the user that executed the command for the file in {0}.
 - Based on the detail information in {1}, remove the cause of the error.
-

ERROR: ISJEE_OM4105: Insufficient memory. detail={0}

Variable Information

{0}: Detail information

Explanation

There is insufficient system memory/swap, or there are insufficient file descriptors.

System Action

Processing is interrupted.

User Action

Either close unnecessary applications, or increase the number of file descriptors that can be used in the system.

ERROR: ISJEE_OM4106: Failed to get the common Java information. func={0} errno={1}

Variable Information

{0}:Internal information
{1}:Error number

Explanation

Failed to obtain the Java information.

System Action

Processing is interrupted.

User Action

Reinstall JDK.

ERROR: ISJEE_OM4107: Required package is not installed.

Explanation

A mandatory package has not been installed.

System Action

Processing is interrupted.

User Action

Reinstall JDK.

ERROR: ISJEE_OM4108: Unable to create lock file. path={0} detail={1}

Variable Information

{0}: File path name
{1}: Detail information

Explanation

Failed to generate the file.

System Action

Processing is interrupted.

User Action

Check whether write privileges were set for the user that executed the command for the parent directory of the file path name shown in {0}.

Based on the detail information in {1}, remove the cause of the error.

ERROR: ISJEE_OM4199: An unexpected error occurred. detail={0}

Variable Information

{0}: Detail information

Explanation

An unexpected error occurred.

System Action

Processing is interrupted.

User Action

Use the iscollectinfo command to collect information for investigation, and send the information to a Systems Engineer.

13.45.16 OM4200 to OM4299

WARNING: ISJEE_OM4200: Error obtaining value of attribute {0} from config. Default value will be used. ERROR={1}

Variable Information

{0}: Definition item name
{1}: Exception information

Explanation

An error occurred when the value for the definition item name was obtained from ConfigBean.

System Action

Processing is continued using the default value for the definition item name.

User Action

Based on the message that was output to the exception information, remove the cause of the error and then reexecute processing.

If the problem cannot be resolved by taking the above action, execute the iscollectinfo command to collect the investigation information and then contact Fujitsu technical support.

WARNING: OM4201: Attribute {0} has invalid value: {1}. Will use default value {2}.

Variable Information

{0}: Definition item name
{1}: Defined value
{2}: Default value

Explanation

The value defined for the definition item name is invalid.

System Action

Processing is continued using the default value for the definition item name.

User Action

The default value is used. If there is not a problem with the default value, no action is required.

For details on editing the defined value so that it is correct, refer to "Operating Environment-related Definition Items", "7.8.14 [Monitoring Service Definition Items](#)" in the "List of Definition Items" chapter.

If the problem continues even though the defined value was edited so that it is correct, execute the iscollectinfo command to collect the investigation information and then contact Fujitsu technical support.

ERROR: ISJEE_OM4202: Systemwalker Service Quality Coordinator Agent is not supported on the {0} platform.

Variable Information

{0}: Operating system name

Explanation

Transaction breakdown analysis does not support this operating system.

System Action

Processing is continued.

Transaction breakdown analysis cannot be used.

User Action

Use transaction breakdown analysis on a supported platform.

ERROR: ISJEE_OM4203: Systemwalker Service Quality Coordinator Agent is not installed.

Explanation

The Systemwalker Service Quality Coordinator Agent product has not been installed.

System Action

Processing is continued.

Transaction breakdown analysis cannot be used.

User Action

Install the Systemwalker Service Quality Coordinator Agent product.

ERROR: ISJEE_OM4204: CallFlow Agent is not initialized.

Explanation

Failed to initialize CallFlow Agent.

System Action

Processing is continued.

Transaction breakdown analysis cannot be used.

User Action

Execute the iscollectinfo command to collect the investigation information, and then contact Fujitsu technical support.

ERROR: ISJEE_OM4205: Acquisition of registry information failed. key={0} entry={1} detail={2}

Variable Information

{0}: Registry key
{1}: Registry entry name
{2}: Error details

Explanation

Failed to obtain the registry information.

System Action

The operation fails.

User Action

The following information is output to the error information:

Failed in <Location in which error occurred>:<API in which error occurred>:<Description of the error information>:<System error number>

The system error number is shown in this message. Contact the system administrator.

If the problem continues, execute the iscollectinfo command to collect the investigation information and then contact Fujitsu technical support.

ERROR: ISJEE_OM4206: An exception or error occurred during method execution. method={0} detail={1}

Variable Information

{0}: Method name
{1}: Error details

Explanation

An exception occurred during processing of method {0}.

System Action

Processing is continued.

Transaction breakdown analysis does not save the current process information.

User Action

Execute the iscollectinfo command to collect the investigation information, and then contact Fujitsu technical support.

13.46 Messages that Contain "PWC" in the Message ID

13.46.1 PWC1000 to PWC1099

ERROR: ISJEE_PWC1002: Failed to read attribute {0} from MBean {1}

Variable Information

{0} Attribute name

{1} MBean name

Explanation

Could not read attribute {0} from MBean object {1}.

System Action

Performance information is not measured and processing continues.

User Action

Follow the action advised in the exception information and any other messages to remove the cause of the error.

The message can be ignored if it is output together with the exception information below immediately after the IJServer cluster is started:

- javax.management.AttributeNotFoundException: Cannot find attribute [Variable Information] get method name

If the above exception is output when the Web application performance information is referenced from the GUI, then reference the performance information again.

PWC1004: WARNING: ISJEE_PWC1004: MBean {0} is not registered

Variable Information

{0} MBean name

Explanation

The MBean object {0} is not registered.

System Action

Performance information is not measured and processing continues.

User Action

Follow the action advised in the other messages and the exception information output to remove the cause of the error.

This message might be output to the Interstage Java EE DAS service server log during start of an IJServer cluster in which the Web container monitor service is enabled - if that is the case, the this message can be ignored.

13.46.2 PWC1200 to PWC1299

PWC1222: Path {0} does not start with a "/" character

Variable Information

{0}: Path

Explanation

The path of the servlet application that dispatches the request does not start with a "/" character.

Cause

The application might be invalid.

User Action

The path of the servlet application that dispatches the request must start with a "/" character. Add the "/" character to the start of the path displayed in the variable information.

PWC1223: Path {0} does not start with a "/" character

Variable Information

{0}: Path

Explanation

The path specified for the javax.servlet.ServletContext getResourcePaths method does not start with a "/" character.

Cause

The application might be invalid.

User Action

Correct the application so that the path specified for the javax.servlet.ServletContext getResourcePaths method starts with a "/" character.

PWC1224: Name cannot be null

Explanation

null cannot be specified for the attribute name specified for the javax.servlet.ServletContext setAttribute method.

Cause

The application might be invalid.

User Action

Correct the application so that null is not specified for the javax.servlet.ServletContext setAttribute method attribute name.

PWC1225: Allocate exception for servlet {0}

Variable Information

{0}: Servlet name

Explanation

The server {0} could not be initialized because it is invalid.

System Action

The servlet cannot start.

Cause

Possible causes are as follows:

- Cannot find the servlet class.
- Failed to generate the class.
- An exception occurred in the init method.

User Action

Follow the action advised in the other messages and the exception information output to remove the cause of the error.

PWC1227: Cannot forward after response has been committed

Explanation

Cannot forward after the response has been committed.

Cause

The application might be invalid.

User Action

Forward the response before it has been committed by you (the user) or by a processing extension. If the response is output when the response buffer size has been exceeded, the response might be committed automatically.

PWC1231: Servlet.service() for servlet {0} threw exception

Variable Information

{0}: Servlet name

Explanation

The servlet service method returned an exception.

System Action

Servlet{0} processing is not performed.

User Action

Refer to the message and exception information that was also output and fix the error.

PWC1232: Exceeded maximum depth for nested request dispatches: {0}

Variable Information

{0}: Dispatch upper limit

Explanation

The upper limit for the number of times there is a dispatch in one request was exceeded.

System Action

Web application processing is aborted.

User Action

Make sure that there are no problems in the creation of the Web application.

If the Web application exceeds the upper limit, change the Web Container "dispatcher-max-depth" property.

INFO: ISJEE_PWC1240: Container {0} has not been started

Variable Information

{0}: Web application name

Explanation

The stop processing was not executed for Web application {0} because it failed to start.

System Action

Web application {0} stop processing is not performed.

PWC1243: Filter execution threw an exception

Explanation

The execution of the filter threw an exception.

Cause

Execution of the filter application failed.

User Action

An error occurs when the filter application is called. Refer to the server log, and remove the cause of the error according to the error message content.

PWC1244: Servlet execution threw an exception

Explanation

The servlet threw an exception.

Cause

The servlet application failed.

User Action

An error occurs when the servlet application is called. Refer to the IJServer cluster server log, and remove the cause of the error according to the error message content.

ERROR: ISJEE_PWC1258: Skipped installing application listeners due to previous error(s)

Explanation

Failed to initialize the listener class. The listener class has not been registered.

Cause

Possible causes are as follows:

- Cannot find the listener class.
- Failed to generate the class.

User Action

Refer to the exception content, and remove the cause of the error.

PWC1267: Filter mapping must specify either a <url-pattern> or a <servlet-name>

Explanation

Either <url-pattern> or <servlet-name> must be specified in filter mapping.

Cause

Either <url-pattern> or <servlet-name> was not specified in the filter mapping defined in the Web application web.xml.

User Action

Specify either `<url-pattern>` or `<servlet-name>` in the filter mapping defined in the Web application `web.xml`, and then re-deploy the Web application.

PWC1268: Filter mapping specifies an unknown filter name {0}

Variable Information

{0}: Filter name

Explanation

An unknown filter name was specified in filter mapping.

Cause

An undefined filter application was specified in the filter mapping defined in the Web application `web.xml`.

User Action

Either specify a filter application with a predefined filter in the filter mapping defined in the Web application `web.xml`, or define a new filter and associate it with the filter mapping, and then re-deploy the Web application.

PWC1269: Invalid `<url-pattern>` {0} in filter mapping

Variable Information

{0}: Invalid URL pattern

Explanation

There is an invalid `<url-pattern>` in the filter mapping.

Cause

The filter mapping is invalid, because illegal characters were specified in the URL in the filter mapping defined in the Web application `web.xml`.

User Action

Correct the URL in which the illegal characters were specified, and then re-deploy the Web application.

ERROR: ISJEE_PWC1275: Exception sending context initialized event to listener instance of class {0}

Variable Information

{0}: Listener class

Explanation

An error occurred in the call to the listener `contextInitialized` method.

System Action

Web application activation is interrupted.

User Action

Follow the action advised in the exception information and any other messages to remove the cause of the error.

PWC1290: Duplicate context initialization parameter {0}

Variable Information

{0}: Parameter name

Explanation

One of the context initialization parameters was duplicated.

Cause

One of the web.xml context initialization parameters was specified more than once.

User Action

Correct the web.xml so that the context initialization parameter names are unique.

INFO: ISJEE_PWC1294: Reloading this Context has started

Explanation

Context reload has started.

13.46.3 PWC1300 to PWC1399

PWC1302: Invalid <url-pattern> {0} in security constraint

Variable Information

{0}: Invalid URL

Explanation

There is an invalid <url-pattern> in the security constraint.

Cause

The <url-pattern> tag value in the security-constraint definition defined in the Web application deployment descriptor (web.xml) does not start with a "/" or "*" character.

User Action

Correct the <url-pattern> tag value in the security-constraint definition so that it starts with a "/" or "*" character.

PWC1303: Servlet mapping specifies an unknown servlet name {0}

Variable Information

{0}: Unknown servlet name

Explanation

An unknown servlet name was specified in servlet mapping.

Cause

The Web application deployment descriptor (web.xml) <servlet-mapping> <servlet-name> description is invalid.

User Action

Specify a valid servlet name for <servlet-name>.

PWC1304: Invalid <url-pattern> {0} in servlet mapping

Variable Information

{0}: Invalid URL

Explanation

There is an invalid <url-pattern> in the servlet mapping.

Cause

The Web application deployment descriptor (web.xml) <servlet-mapping> <url-pattern> description is invalid.

User Action

Specify a valid value for <url-pattern>.

ERROR: ISJEE_PWC1305: Exception during cleanup after start failed

Explanation

An exception occurred during cleanup after the Web application failed to start.

Cause

An exception occurred while the Web application was not running.

User Action

A message informing you that the Web application failed to start is output before this message, so resolve that problem.

ERROR: ISJEE_PWC1306: Startup of context {0} failed due to previous errors

Variable Information

{0}: Context root

Explanation

The Web application failed to start because of an error.

Cause

Refer to the message and exception information that was also output.

User Action

Refer to the message and exception information that was also output and fix the error.

ERROR: ISJEE_PWC1311: Error stopping context {0}

Variable Information

{0}: Internal information and context root

Explanation

Exception for when the loader is being stopped.

Cause

Refer to the message that was also output to the server log.

User Action

Refer to the message that was also output to the server log.

ERROR: ISJEE_PWC1315: Error reading listeners from TLD

Explanation

An error occurred reading the tag library descriptor.

System Action

Web application activation processing is aborted.

User Action

Follow the action advised in the other messages and the exception information output to remove the cause of the error.

PWC1319: JSP file {0} must start with a '/'

Variable Information

{0}: JSP file name

Explanation

JSP files must start with a "/" character.

Cause

The <jsp-file> tag value in the JSP definition defined in the Web application web.xml does not start with a "/" character.

User Action

Correct the <jsp-file> tag value in the JSP application so that it starts with a "/" character, and then re-deploy the Web application.

INFO: ISJEE_PWC1377: Starting service {0}

Variable Information

{0}: Service name

Explanation

The service will start.

INFO: ISJEE_PWC1379: Stopping service {0}

Variable Information

{0}: IJServer cluster name

Explanation

The IJServer cluster will stop.

PWC1381: Error allocating a servlet instance

Explanation

An exception occurred while initializing the servlet instance.

Cause

Cannot find the class, or the constructor might have thrown an exception.

User Action

Refer to the server log, and remove the cause of the error according to the error message content.

PWC1382: Allocate exception for servlet {0}

Variable Information

{0}: Servlet name

Explanation

Failed to initialize the servlet. This servlet is invalid.

System Action

Servlet{0} processing is not performed.

User Action

Possible causes are as follows:

- Cannot find the servlet class.
- Failed to create the class.

- An exception occurred in the init method.

Refer to the message and exception information that was also output and fix the error.

PWC1386: Servlet.destroy() for servlet {0} threw exception

Variable Information

{0}: Servlet name

Explanation

Servlet.destroy() of the servlet threw an exception.

Cause

An exception occurred while processing the servlet application destroy method.

User Action

Refer to the server log, and remove the cause of the error according to the error message content.

PWC1391: Servlet.init() for servlet {0} threw exception

Variable Information

{0}: Servlet name

Explanation

Servlet.init() threw an exception.

Cause

An exception occurred while initializing the servlet application.

User Action

An error occurred while processing the servlet application init method. Refer to the server log, and remove the cause of the error according to the error message content.

PWC1392: Error instantiating servlet class {0}

Variable Information

{0}: Servlet class name

Explanation

An exception occurred while initializing the servlet class.

Cause

The exception occurred while the servlet class instance was being initialized, or the constructor might have thrown the exception.

User Action

Refer to the server log, and remove the cause of the error according to the error message content.

PWC1396: Servlet {0} threw load() exception

Variable Information

{0}: Servlet name

Explanation

Failed to load/initialize the servlet because it is invalid.

System Action

Servlet load/initialization is interrupted.

User Action

Follow the action advised in the other messages and the exception information output to remove the cause of the error.

PWC1397: Wrapper cannot find servlet class {0} or a class it depends on

Variable Information

{0}: Servlet class name

Explanation

Cannot find the servlet class or the dependency class.

Cause

The servlet class that you tried to call does not exist, or there are no access privileges for the servlet class.

User Action

Make sure that the servlet class exists in the Web application, and then re-deploy the Web application.

13.46.4 PWC1400 to PWC1499

PWC1400: No servlet class has been specified for servlet {0}

Variable Information

{0}: Servlet name

Explanation

The servlet class was not specified.

Cause

You tried to call a servlet class that has not been defined in web.xml.

User Action

There might not be a <servlet-class> tag element in the <servlet> tag in the Web application web.xml. Check the Web application web.xml, and then re-deploy the Web application.

PWC1403: Class {0} is not a Servlet

Variable Information

{0}: Class name

Explanation

The specified class is not a servlet.

Cause

The class ({0}) has not inherited the javax.servlet.http.HttpServlet class or the javax.servlet.GenericServlet class, therefore it cannot be called as a servlet.

User Action

Correct the Web application so that the class ({0}) inherits the javax.servlet.http.HttpServlet class or the javax.servlet.GenericServlet class.

PWC1406: Servlet.service() for servlet {0} threw exception

Variable Information

{0}: Servlet name

Explanation

The servlet service method returned an exception.

System Action

The servlet cannot start.

User Action

Refer to the message and exception information that was also output and fix the error.

PWC1409: Marking servlet {0} as unavailable

Variable Information

{0}: Servlet name

Explanation

The servlet is currently invalid because it could not be initialized.

System Action

The servlet cannot start.

User Action

Refer to the message and exception information that was also output and fix the error.

INFO: ISJEE_PWC1412: {0} ServletContext.log():{1} ERROR: ISJEE_PWC1412: {0} ServletContext.log():{1}

Variable Information

{0}: Module type and context root

{1}: Detail information (output message)

Explanation

Possibilities are as follows:

- The message was output by the Web application using the `javax.servlet.ServletContext` or `javax.servlet.GenericServlet` log method.
- This is a message for the processing of the Web container related to the Web application.

System Action

If this was output by the Web application, processing continues (since it has application dependency).

If this was output by the Web container, refer to the detail information.

User Action

If this was output by the Web container, refer to the detail information and the exception information (in the case of an ERROR message).

ERROR: ISJEE_PWC1415: Error stopping container {0}

Variable Information

{0}: Lifecycle module

Explanation

Web container stop failed.

System Action

Processing is interrupted.

User Action

Follow the action advised in the exception information and any other messages to remove the cause of the error.

13.46.5 PWC1600 to PWC1699

INFO: PWC1635: Illegal access: this web application instance has been stopped already (the eventual following stack trace is caused by an error thrown for debugging purposes as well as to attempt to terminate the thread which caused the illegal access, and has no functional impact)

Explanation

The application processing failed. The IJServer cluster is stopping or HotDeploy is active, therefore the application cannot be processed.

System Action

IJServer cluster stop processing or HotDeploy continues.

java.lang.ThreadDeath might be thrown in the application. The java.lang.ThreadDeath stack trace might also be output after this message.

User Action

- The use of the HotDeploy function during normal transactions is not recommended. Use the HotDeploy function when there are no requests.
- If a thread has been generated in the application, make sure that the thread dies when application close processing completes. This message might be output if the thread is still running after close processing. Examples of application close processing are as follows:
 - When a thread was generated using the init method.

It is recommended that you close threads created in the application, using the servlet destroy method.
 - When a thread was generated using the contextInitialized method.

It is recommended that you close threads that were created in the application using the ServletContextListener contextDestroyed method.

13.46.6 PWC2500 to PWC2599

PWC2529: Cannot call invoker servlet with a named dispatcher

Explanation

Cannot call the invoker servlet with the named dispatcher.

Cause

The application might be invalid.

User Action

Make sure that the correct servlet name was specified for the ServletContext#getNamedDispatcher() method parameter.

13.46.7 PWC2700 to PWC2799

ERROR: ISJEE_PWC2760: Exception initializing random number generator of class {0}

Variable Information

{0}: Class name

Explanation

Exception for initialization of the random number generator of class {0}.

Cause

Failed to create the session ID using the java.security.SecureRandom class.

System Action

The session ID is created again using the java.util.Random class and processing continues.

User Action

Refer to the exception information that was also output to the server log and fix the error.

INFO: ISJEE_PWC2769: Manager has not yet been started

Explanation

The Session Manager is not running.

Cause

This message is output if the session registry client failed to start when using session recovery.

System Action

The Session Manager stop processing is not performed because the Session Manager is not running.

User Action

Refer to the message that was output when the JServer cluster started and remove the cause of the error.

PWC2776: invalidate: Session already invalidated

Explanation

The session was already invalidated.

Cause

The invalidate method was called for an already invalidated session, therefore the IllegalStateException exception occurred.

User Action

The invalidate method cannot be called for an already invalidated session instance (the HttpSession instance). Make sure that the invalidate method is not called for an already invalidated session instance in the Web application.

PWC2777: isNew: Session already invalidated

Explanation

The session was already invalidated.

Cause

The isNew method was called for an already invalidated session, therefore the IllegalStateException exception occurred.

User Action

The isNew method cannot be called for an already invalidated session instance (the HttpSession instance). Make sure that the isNew method is not called for an already invalidated session instance in the Web application.

PWC2778: getAttribute: Session already invalidated

Explanation

The session was already invalidated.

Cause

The `getAttribute` method was called for an already invalidated session, therefore the `IllegalStateException` exception occurred.

User Action

The `getAttribute` method cannot be called for an already invalidated session instance (the `HttpSession` instance). Make sure that the `getAttribute` method is not called for an already invalidated session instance in the Web application.

PWC2779: `getAttributeNames`: Session already invalidated

Explanation

The session was already invalidated.

Cause

The `getAttributeNames` method was called for an already invalidated session, therefore the `IllegalStateException` exception occurred.

User Action

The `getAttributeNames` method cannot be called for an already invalidated session instance (the `HttpSession` instance). Make sure that the `getAttributeNames` method is not called for an already invalidated session instance in the Web application.

PWC2780: `getCreationTime`: Session already invalidated

Explanation

The session was already invalidated.

Cause

The `getCreationTime` method was called for an already invalidated session, therefore the `IllegalStateException` exception occurred.

User Action

The `getCreationTime` method cannot be called for an already invalidated session instance (the `HttpSession` instance). Make sure that the `getCreationTime` method is not called for an already invalidated session instance in the Web application.

PWC2781: `getLastAccessedTime`: Session already invalidated

Explanation

The session was already invalidated.

Cause

The `getLastAccessedTime` method was called for an already invalidated session, therefore the `IllegalStateException` exception occurred.

User Action

The `getLastAccessedTime` method cannot be called for an already invalidated session instance (the `HttpSession` instance). Make sure that the `getLastAccessedTime` method is not called for an already invalidated session instance in the Web application.

PWC2784: `getValueNames`: Session already invalidated

Explanation

The session was already invalidated.

Cause

The `getValueNames` method was called for an already invalidated session, therefore the `IllegalStateException` exception occurred.

User Action

The `getValueNames` method cannot be called for an already invalidated session instance (the `HttpSession` instance). Make sure that the `getValueNames` method is not called for an already invalidated session instance in the Web application.

PWC2786: removeAttribute: Session already invalidated

Explanation

The session was already invalidated.

Cause

The removeAttribute method was called for an already invalidated session, therefore the IllegalStateException exception occurred.

User Action

The removeAttribute method cannot be called for an already invalidated session instance (the HttpSession instance). Make sure that the removeAttribute method is not called for an already invalidated session instance in the Web application.

PWC2788: setAttribute: Non-serializable attribute with name {0}

Variable Information

{0}: Object name

Explanation

An object that does not implement java.io.Serializable was set in the session.

Cause

The object {0}, for which java.io.Serializable was not implemented, was set in the session by the Web application.

User Action

Make sure that the object {0} is implemented using java.io.Serializable.

PWC2789: setAttribute: Session already invalidated

Explanation

The session was already invalidated.

Cause

The setAttribute method was called for an already invalidated session, therefore the IllegalStateException exception occurred.

User Action

The setAttribute method cannot be called for an already invalidated session instance (the HttpSession instance). Make sure that the setAttribute method is not called for an already invalidated session instance in the Web application.

PWC2790: setAttribute: name parameter cannot be null

Explanation

The setAttribute method name parameter cannot be null.

Cause

The IllegalArgumentException exception occurred because null was passed as the attribute name in the method argument.

User Action

Check the Web application to see whether there is null processing for the setAttribute method attribute name.

13.46.8 PWC3000 to PWC3099

ERROR: ISJEE_PWC3010: Error closing application web.xml

Explanation

Error for when the application web.xml is being closed.

Cause

Refer to the message that was also output to the server log.

User Action

Refer to the exception information that was also output to the server log and fix the error.

ERROR: ISJEE_PWC3014: Parse error in application web.xml

Explanation

Failed to parse the context (Web application) web.xml.

Cause

The web.xml content might be invalid.

User Action

Refer to the content of the SAX exception that occurred immediately before, and remove the cause of the error.

Refer to "Web application deployment descriptor (web.xml)" and check whether a tag not supported was used, or whether a description is invalid.

ERROR: ISJEE_PWC3015: Occurred at line {0} column {1}

Variable Information

{0}: Line number (if this cannot be identified, then this will be -1)

{1}: Column number (if this cannot be identified, then this will be -1)

Explanation

Failed to parse the context (Web application) web.xml.

Cause

The web.xml content might be invalid.

User Action

Check the web.xml location shown in the variable information. Refer to the content of the SAX exception displayed immediately before and after this message, and remove the cause of the error.

ERROR: ISJEE_PWC3017: Cannot instantiate an authenticator of class {0}

Variable Information

{0}: Class name

Explanation

Failed to generate the authenticatorClass instance.

Cause

There might not be enough memory.

User Action

If there is insufficient memory, refer to "[Chapter 6 Java EE Function Tuning](#)" and take action. If the problem is still not resolved, contact a Systems Engineer.

ERROR: ISJEE_PWC3018: Cannot configure an authenticator for method {0}

Variable Information

{0}: Authentication method name

Explanation

Failed to set the authentication method {0} authenticator.

Cause

The Web application deployment descriptor auth-method tag content is invalid.

User Action

Check the Web application deployment descriptor auth-method tag content.

ERROR: ISJEE_PWC3019: Cannot load authenticators mapping list

Explanation

Cannot load the authenticator mapping list.

Cause

Refer to the message that was also output to the server log.

User Action

Refer to the exception information that was also output to the server log and fix the error.

ERROR: ISJEE_PWC3023: Error closing default web.xml

Explanation

An error occurred when the default web.xml was being closed.

Cause

Refer to the message that was also output to the server log.

User Action

Refer to the exception information that was also output to the server log and fix the error.

INFO: ISJEE_PWC3031: Security role name {0} used in an <auth-constraint> without being defined in a <security-role> in context [{1}]

Variable Information

{0}: Security role name

{1}: Context root

Explanation

A security role name {0} not defined in the <security-role> definition was used in the web.xml <auth-constraint> definition. Processing of the {0} security role name continues with the name defined in the <security-role> definition.

INFO: ISJEE_PWC3032: Security role name {0} used in a <role-link> without being defined in a <security-role> in context [{1}]

Variable Information

{0}: Security role name

{1}: Context root

Explanation

A security role name {0} not defined in the <security-role> definition was used in the web.xml <role-link> definition. Processing of the {0} security role name continues with the name defined in the <security-role> definition.

INFO: ISJEE_PWC3033: Security role name {0} used in a <run-as> without being defined in a <security-role> in context [{1}]

Variable Information

{0}: Security role name
{1}: Context root

Explanation

A security role name {0} not defined in the <security-role> definition was used in the web.xml <run-as> definition. Processing of the {0} security role name continues with the name defined in the <security-role> definition.

ERROR: ISJEE_PWC3036: Exception processing TLD {0} in JAR at resource path {1} in context {2}

Variable Information

{0}: TagLibraryDescriptor file
{1}: JAR file path
{2}: Context root

Explanation

Exception for processing of JAR file TLD {0} at resource path {1} in Web application {2}.

Cause

Possible causes are as follows:

- There is no JAR file in the JAR file path shown.
- There are no access privileges for the JAR file shown in the JAR file path.
- There is no TagLibraryDescriptor file in the JAR file.

User Action

Take the following action, and then re-deploy the Web application.

- Add the JAR file to the path shown in the JAR file path, and then create the WAR file.
- Add the access privileges for the JAR file shown in the JAR file path, and then create the WAR file.
- Add the TagLibraryDescriptor file to the JAR file shown in the JAR file path, and then create the WAR file.

PWC3037: Exception processing TLD at resource path {0} in context {1}

Variable Information

{0}: TagLibraryDescriptor file
{1}: Context root

Explanation

Exception for processing of TLD at resource path {0} in Web application {1}.

Cause

- The TagLibraryDescriptor file described in the <taglib-location> tag in the tag library mapping defined in the Web application web.xml does not exist.
- There is a TagLibraryDescriptor file with incorrect XML grammar under WEB-INF of the Web application.

User Action

Take the following action, and then re-deploy the Web application.

- Store the TagLibraryDescriptor file in the path described in the <taglib-location> tag in the tag library mapping defined in the Web application web.xml, and then create the WAR file.
- Check the TagLibraryDescriptor file, and correct the locations in which the XML grammar is incorrect.

ERROR: ISJEE_PWC3038: Exception processing JAR at resource path {0} in context {1}

Variable Information

{0}: JAR file
{1}: Context root

Explanation

Exception for processing of the JAR file at resource path {0} in Web application {1}.

Cause

- There is no JAR file.
- There are no read privileges for the JAR file.

User Action

- Check that the JAR file exists.
- Check whether there are read privileges for the JAR file.

PWC3039: Invalid TLD resource path {0}

Variable Information

{0}: TagLibraryDescriptor file path

Explanation

Exception for processing of TLD at resource path {0}.

Cause

- The TagLibraryDescriptor file described in the <taglib-location> tag in the tag library mapping defined in the Web application web.xml does not exist.
- There is a TagLibraryDescriptor file with incorrect XML grammar under WEB-INF of the Web application.

User Action

Take the following action, and then re-deploy the Web application.

- Store the TagLibraryDescriptor file in the path described in the <taglib-location> tag in the tag library mapping defined in the Web application web.xml, and then create the WAR file.
- Check the TagLibraryDescriptor file, and correct the locations in which the XML grammar is incorrect.

ERROR: ISJEE_PWC3040: Marking this application unavailable due to previous error(s)

Explanation

This application is marked as unavailable due to previous error(s).

Cause

An error occurred in the starting of the context (Web application).

User Action

Refer to the exception that occurred immediately before, and remove the cause of the error.

ERROR: ISJEE_PWC3058: Error deploying configuration descriptor {0}

Variable Information

{0}: Internal information

Explanation

Error for when configuration descriptor {0} is being deployed.



The configuration descriptor is an internal configuration file. Do not edit this file.

Cause

web.xml might be invalid.

User Action

Check whether any of the descriptions in web.xml are invalid.

Based on the exception information output before and after this message, remove the cause of the error.

13.46.9 PWC3500 to PWC3599

PWC3501: No modifications are allowed to a locked ResourceSet

Explanation

You are not allowed to change a locked ResourceSet.

Cause

An update operation was performed for Set returned by ServletContext#getResourcePaths() in the Web application.

User Action

Check whether an update operation was performed for Set returned by ServletContext#getResourcePaths() in the Web application.

INFO: ISJEE_PWC3505: ExtensionValidator[{0}][{1}]: Required extension "{2}" not found.

Variable Information

{0}: Context root

{1}: Internal information

{2}: Option package name

Explanation

Cannot find option package {2}.

INFO: ISJEE_PWC3506: ExtensionValidator[{0}]: Failure to find {1} required extension(s).

Variable Information

{0}: Context root

{1}: Number of option packages that could not be found

Explanation

Could not find the option package(s).

13.46.10 PWC3900 to PWC3999

ERROR: ISJEE_PWC3983: Coyote connector has not been started

Explanation

The HTTP listener has not been started.

System Action

Processing continues.

User Action

The HTTP listener might have failed to start. Follow the action advised in the other messages and the exception information output to remove the cause of the error.

PWC3984: Protocol handler destroy failed: {0}

Variable Information

{0}: Detail information

Explanation

Failed to destroy the protocol handler.

Cause

There is a problem in close processing for the component that accepts requests in the Web container.

User Action

Refer to the detail information and other messages that were output and remove the problem.

If the problem persists, use the `iscollectinfo` command to collect investigation information, and then contact your service engineer.

PWC3985: Protocol handler initialization failed: {0}

Variable Information

{0}: Exception information

Explanation

Failed to initialize the protocol handler.

Cause

Refer to the message that was also output to the server log.

User Action

Refer to the message that was also output to the server log.

PWC3987: Protocol handler start failed: {0}

Variable Information

{0}: Detail information

Explanation

Failed to initialize the component that accepts requests in the Web container.

Cause

Possible causes are as follows:

- The port number is being used.
- The HTTP listener network address is incorrect.

User Action

- Change the port number used by the HTTP listener.
- Alternatively, close applications that are using the port.
- Set a correct HTTP listener IP address.

ERROR: ISJEE_PWC3989: An exception or error occurred in the container during the request processing

Explanation

An exception or error occurred in the connector during request processing.

Cause

An exception occurred in the Web container during request processing.

IIServer cluster stop processing or HotDeploy might have been performed.

User Action

Refer to the content of the message and the exception that were output before and after this message and remove the problem.

If the problem persists, use the iscollectinfo command to collect investigation information, and then contact your service engineer.

The use of the HotDeploy function during normal transactions is not recommended. Use the HotDeploy function when there are no requests.

PWC3990: getWriter() has already been called for this response

Explanation

getWriter() has already been called for this response.

Explanation

The getWriter method and the getOutputStream method were called for an identical response.

User Action

Only one of the getWriter method and the getOutputStream method can be used for an identical response. Check and correct the application.

PWC3991: getOutputStream() has already been called for this response

Explanation

getOutputStream() has already been called for this response.

Cause

The getOutputStream method and the getWriter method were called for an identical response.

User Action

Only one of the getWriter method and the getOutputStream method can be used for an identical response. Check and correct the application.

PWC3992: Cannot reset buffer after response has been committed

Explanation

The buffer cannot be reset after the response is committed.

Cause

You tried to reset the response buffer after processing for some or all received responses.

User Action

Check the application to see whether the response resetBuffer method was called after processing for some or all received responses, and correct if necessary.

PWC3993: Cannot call sendError() after the response has been committed

Explanation

sendError() cannot be called after the response is committed.

Cause

The response `sendError` method was called after processing for some or all received responses.

User Action

Check the application to see whether the response `sendError` method was called after processing for some or all received responses, and correct if necessary.

PWC3994: Cannot call `sendRedirect()` after the response has been committed

Explanation

`sendRedirect()` cannot be called after the response is committed.

Cause

The response `sendRedirect` method was called after processing for some or all received responses.

User Action

Check the application to see whether the response `sendRedirect` method was called after processing for some or all received responses, and correct if necessary.

PWC3995: Cannot change buffer size after data has been written

Explanation

The buffer size cannot be changed after the data has already been written.

Cause

The response `setBufferSize` method was called after processing for some or all received responses.

User Action

Check the application to see whether the response `setBufferSize` method was called after processing for some or all received responses, and correct if necessary.

PWC3997: `getReader()` has already been called for this request

Explanation

`getReader()` has already been called for this request.

Cause

The `getInputStream` method and the `getReader` method were called for an identical request.

User Action

Only one of the `getReader` method and the `getInputStream` method can be used for an identical request. Check and correct the application.

PWC3998: `getInputStream()` has already been called for this request

Explanation

`getInputStream()` has already been called for this request.

Cause

The `getReader` method and the `getInputStream` method were called for an identical request.

User Action

Only one of the `getInputStream` method and the `getReader` method can be used for an identical request. Check and correct the application.

PWC3999: Cannot create a session after the response has been committed

Explanation

Cannot create a session after the response has been committed.

Cause

You tried to generate a session after processing for some or all received responses.

User Action

Check the application to see whether the response getSession method was called and an attempt to generate a session made after processing for some or all received responses, and correct if necessary.

13.46.11 PWC4000 to PWC4099

PWC4000: Cannot call setAttribute with a null name

Explanation

null cannot be specified for the setAttribute name parameter.

Cause

null was specified as the name argument of the setAttribute(String name, Object value) method for the request.

User Action

Check the application to see whether null was specified as the name argument of the setAttribute(String name, Object value) method for the request, and correct if necessary.

WARNING: ISJEE_PWC4011: Unable to set request character encoding to {0} from context {1}, because request parameters have already been read, or ServletRequest.getReader() has already been called

Variable Information

{0}: Character encoding
{1}: Context root

Explanation

The character encoding ({0}) cannot be set because the request parameters have already been read or javax.servlet.ServletRequest.getReader() has already been called.

System Action

Processing is continued.

User Action

Call javax.servlet.ServletRequest#setCharacterEncoding(String) before calling the following methods in the Web application:

- javax.servlet.getReader()
- javax.servlet.getParameter(String)
- javax.servlet.getParameterNames()
- javax.servlet.getParameterMap()
- javax.servlet.getParameterNames()
- javax.servlet.getParameterValues(String)



If this message is output to the Interstage Java EE DAS service server log, then messages in which {1} is "/javaee_admin" can be ignored.

13.46.12 PWC4200 to PWC4299

PWC4216: Name {0} is not bound in this Context

Variable Information

{0}: Key name

Explanation

The name ({0}) has not been bound in this context.

Cause

The key specified in the Web application has not been bound in the context.

User Action

Check that the Web application is correct.

PWC4217: Context is read only

Explanation

The context is read-only.

Cause

An update operation was performed for a read-only context in the Web application.

User Action

Check whether an update operation was performed for a read-only context in the Web application.

13.46.13 PWC4400 to PWC4499

PWC4430: Document base {0} does not exist or is not a readable directory

Variable Information

{0}: Path name

Explanation

Document base {0} does not exist, or is not a readable directory.

Cause

The directory that stores the IJServer cluster Web application resources does not exist, or you are not allowed to read it.

User Action

Restart the Interstage Java EE Node Agent service.

If the problem is not resolved, create the IJServer cluster again and then re-deploy the application.

PWC4439: Resource {0} not found

Variable Information

{0}: Resource name

Explanation

Cannot find resource {0}.

Cause

Resource {0} does not exist.

User Action

Check whether the resource exists.

WARNING: ISJEE_PWC4450: Could not get dir listing for {0}

Variable Information

{0}: Directory name

Explanation

Failed to reference a directory on the system.

System Action

Processing continues. The application might not run normally, however.

User Action

Possible causes are as follows:

- The directory does not exist.
- There are no access privileges for the directory.
- System resources (file descriptors) are exhausted.

Refer to the message and exception information that was also output and fix the error.

13.46.14 PWC4600 to PWC4699

ERROR: ISJEE_PWC4651: Error starting endpoint

Explanation

Error for when the endpoint is being started.

Cause

The port specified in the port number is being used by another application.

User Action

Change the Web container port number.

ERROR: ISJEE_PWC4653: Error reading request, ignored

Explanation

An error occurred while the request was being read, but it was ignored.

Cause

An exception occurred in request processing.

User Action

Refer to the content of the message and the exception that were output before and after this message and remove the problem.

ERROR: ISJEE_PWC4659: Error initializing socket factory

Explanation

Error for when the socket factory is being initialized.

Cause

An exception occurred while initializing the socket factory.

User Action

- Refer to the content of the message and the exception that were output before and after this message and remove the problem.
 - If the setting is for SSL to be used between the Web server connector and the Web container, check whether the JSSE (Java Secure Socket Extension) JAR file of another product has been set.
 - Check whether there is an abnormality in the OS network settings.
 - If the problem is not resolved, create the IIServer cluster again.
-

PWC4662: Request header is too large

Explanation

The request header size exceeded the receive buffer size.

System Action

Processing is interrupted.

User Action

Check whether an unnecessary request header was sent from the client. Additionally, customize the receive buffer size(for details, refer to "[7.8.3 HTTP Service Definition Items](#)").

13.46.15 PWC5000 to PWC5099

WARNING: ISJEE_PWC5082: More than the maximum number of request parameters (GET plus POST) for a single request ({{0}}) were detected. Any parameters beyond this limit have been ignored. To change this limit, set the maxParameterCount property on the http-listener.

Variable Information

{0}: Value set for maxParameterCount

Explanation

The number of HTTP request parameters has exceeded the value that was set for maxParameterCount.

System Action

Processing is executed ignoring those parameters which have exceeded the maximum number allowed.

User Action

The number of HTTP request parameters is greater than {0}, therefore the HTTP request is not processed normally. Review the value that was set for the HTTP listener additional property maxParameterCount and the number of HTTP request parameters required in the application.

13.46.16 PWC5300 to PWC5399

PWC5330: Alias name {0} does not identify a key entry

Variable Information

{0}: Certificate nickname

Explanation

A certificate nickname that has not been registered in the keystore was specified.

Cause

Refer to the message and exception information that was also output.

User Action

Check that the certificate nickname specified in the HTTP listener SSL settings is valid.

13.46.17 PWC5500 to PWC5599

ERROR: ISJEE_PWC5540: Endpoint {0} shutdown due to exception: {1}

Variable Information

{0}: Information about the socket that accepts requests in the Web container

{1}: Exception information

Explanation

An exception occurred, therefore endpoint {0} has been shut down.

Cause

An exception occurred in accept processing for requests in the Web container.

User Action

Based on the exception information, remove the cause of the error.

ERROR: ISJEE_PWC5541: Endpoint {0} ignored exception: {1}

Variable Information

{0}: Information about the socket that accepts requests in the Web container

{1}: Exception information

Explanation

An exception occurred in accept processing for requests in the Web container. The socket is reinitialized and processing continues.

Cause

Refer to the exception information.

User Action

Based on the exception information, remove the cause of the error.

WARNING: ISJEE_PWC5542: Reinitializing ServerSocket

Explanation

The socket that accepts requests is reinitialized.

WARNING: ISJEE_PWC5543: Restarting endpoint**Explanation**

The component that accepts requests is restarted.

13.46.18 PWC5700 to PWC5799

ERROR: ISJEE_PWC5750: All threads ({0}) are currently busy, waiting. Increase http-listener attribute acceptor-threads ({1}) or check the servlet status**Variable Information**

{0}: Current number of requests

{1}: Maximum number of processes

Explanation

All threads are currently busy, waiting.

Cause

The number of simultaneous requests to the Web container has exceeded the number of simultaneous processes specified.

User Action

- When you estimate the number of simultaneous requests to the Web container, make sure that there will be no problems for the system configuration (for example, restrictions on the number of Web server connections and operation of the load balancing device).
- If there is not too much system load and memory usage, add the IJServer cluster server instance (it might be necessary to create an application that does have dependency on the number of processes in case of a file access conflict, for example).
- If there is not too much Web container load and Java VM Heap usage, or the Java VM Heap upper limit is raised, increase the value for the number of simultaneous Web container processes in the IJServer cluster settings (if necessary, also increase the Java VM Heap upper limit).
- If there are no problems for the configuration, but too much system load and memory usage, then consider scaling up the system.

ERROR: ISJEE_PWC5752: Caught exception ({0}) executing {1}, terminating thread**Variable Information**

{0}: Internal information

{1}: Exception information

Explanation

Exception {1} was caught while thread {0} was executing, therefore the thread was terminated.

Cause

An exception occurred in request accept processing.

User Action

Take action according to the exception information and the message output at the same time.

This might be output when requests are accepted during Web container close processing. In this case, ignore the message.

13.46.19 PWC5900 to PWC5999

ERROR: ISJEE_PWC5963: The scratchDir you specified: {0} is unusable.

Variable Information

{0}: JSP compilation result directory

Explanation

There is a problem with the directory specified for "scratchdir" in the <property> tag of <jsp-config> in sun-web.xml.

Cause

Possible causes are as follows:

- The directory does not exist.
- There are no read/write privileges for the directory.
- There is a file that has the same name as the specified directory.

User Action

- Check whether the directory exists.
- Assign read/write privileges for the directory.

Also check "[3.2.3.7 Tag and Description of the Interstage Deployment Descriptor](#)" > "jsp-config", property "scratchdir".

PWC5983: Illegal value of 'scope' attribute: {0} (must be one of "page", "request", "session", or "application")

Variable Information

{0}: Invalid scope attribute value

Explanation

The scope attribute value is invalid.

Cause

The <jsp:useBean> tag scope attribute content is invalid.

User Action

Check the <jsp:useBean> tag scope attribute content.

PWC5987: Page directive: invalid buffer size

Explanation

page directive: The buffer attribute value is invalid.

Cause

The <%@page> tag buffer attribute content is invalid.

User Action

Check the <%@page> tag buffer attribute content.

PWC5988: Page directive: illegal to have multiple occurrences of 'contentType' with different values (old: {0}, new: {1})

Variable Information

{0}: First value

{1}: Second value

Explanation

page directive: 'contentType' is invalid when different values are specified for it more than once.

Cause

The <% @page> tag contentType attribute content is invalid. Different values cannot be specified for contentType.

User Action

Check the <% @page> tag contentType attribute content.

PWC5990: Page directive: illegal to have multiple occurrences of 'session' with different values (old: {0}, new: {1})

Variable Information

{0}: First value

{1}: Second value

Explanation

page directive: 'session' is invalid when different values are specified for it more than once.

Cause

The <% @page> tag session attribute content is invalid. Different values cannot be specified for session.

User Action

Check the <% @page> tag session attribute content.

PWC5991: Page directive: invalid value for session

Explanation

page directive: The session attribute value is invalid.

Cause

The <% @page> tag session attribute content is invalid. 'true' or 'false' must be specified for the session attribute.

User Action

Check the <% @page> tag session attribute content.

PWC5997: Page directive: invalid value for isThreadSafe

Explanation

page directive: The isThreadSafe attribute value is invalid.

Cause

The <% @page> tag isThreadSafe attribute content is invalid. 'true' or 'false' must be specified for the isThreadSafe attribute.

User Action

Check the <% @page> tag isThreadSafe attribute content.

13.46.20 PWC6000 to PWC6099

PWC6001: Page directive: invalid value for isErrorPage

Explanation

page directive: The isErrorPage attribute value is invalid.

Cause

The <% @page> tag isErrorPage attribute content is invalid. 'true' or 'false' must be specified for the isErrorPage attribute.

User Action

Check the <%@page> tag isErrorPage attribute content.

PWC6003: Page directive: illegal to have multiple occurrences of 'language' with different values (old: {0}, new: {1})

Variable Information

{0}: First value

{1}: Second value

Explanation

page directive: 'language' is invalid when different values are specified for it more than once.

Cause

The <%@page> tag language attribute content is invalid. Different values cannot be specified for language.

User Action

Check the <%@page> tag language attribute content.

PWC6005: Page directive: invalid language attribute

Explanation

page directive: Invalid language attribute.

Cause

The <%@page> tag language attribute content is invalid. Specify 'java' for language.

User Action

Check the <%@page> tag language attribute content.

PWC6009: Page directive: illegal to have multiple occurrences of 'extends' with different values (old: {0}, new: {1})

Variable Information

{0}: First value

{1}: Second value

Explanation

page directive: 'extends' is invalid when different values are specified for it more than once.

Cause

The <%@page> tag extends attribute content is invalid. Different values cannot be specified for extends.

User Action

Check the <%@page> tag extends attribute content.

PWC6012: Page directive: invalid value for isELIgnored

Explanation

page directive: An invalid value was specified for isELIgnored.

Cause

The <%@page> tag isELIgnored attribute content is invalid. 'true' or 'false' must be specified for the isELIgnored attribute.

User Action

Check the `<%@page>` tag isELIgnored attribute content.

PWC6015: Tag directive: illegal to have multiple occurrences of the attribute "{0}" with different values (old: {1}, new: {2})

Variable Information

{0}: Attribute name
{1}: First value
{2}: Second value

Explanation

Tag directive: The attribute is illegal when different values are specified for it more than once.

Cause

The `<%@tag>` tag attribute content is invalid. Different values cannot be specified for the same `<%@tag>` attributes.

User Action

Check the `<%@tag>` tag attribute content.

PWC6033: Unable to compile class for JSP

Explanation

Failed to compile JSP.

Cause

Refer to the message and exception information that was also output.

User Action

Refer to the message and exception information that was also output.

PWC6034: Unable to load class for JSP

Explanation

Failed to load JSP.

System Action

Execution of JSP fails.

User Action

Check whether the JSP compilation has completed normally.

If `true` is set for the `usePrecompiled` property in Interstage Deployment Descriptor(`sun-web.xml`), check that the compilation result has been stored in `WEB-INF/classes` (or `lib`).

PWC6038: "{0}" contains invalid expression(s): {1}

Variable Information

{0}: EL content
{1}: Exception information

Explanation

EL contains invalid expression(s).

Cause

EL contains invalid expression(s).

User Action

Based on the exception information, check the EL content.

PWC6049: Attempted a bean operation on a null object.

Explanation

A Bean operation on a null object was attempted.

Cause

The `<jsp:getProperty>` name attribute content is invalid.

User Action

Check the `<jsp:getProperty>` name attribute content.

PWC6053: Can't find a method to write property '{0}' of type '{1}' in a bean of type '{2}'

Variable Information

{0}: Property name
{1}: Property type
{2}: Class name of Bean

Explanation

Could not find the setter method for the `<jsp:setProperty>` property attribute.

Cause

The `<jsp:setProperty>` property attribute content is invalid.

User Action

Check the `<jsp:setProperty>` property attribute content.

PWC6054: Cannot find any information on property '{0}' in a bean of type '{1}'

Variable Information

{0}: Property name
{1}: Class name of Bean

Explanation

Could not find the getter method for the `<jsp:setProperty>` property attribute.

Cause

The `<jsp:getProperty>` property attribute content is invalid.

User Action

Check the `<jsp:getProperty>` property attribute content.

PWC6055: Cannot set indexed property

Explanation

The method used to specify the value for the array attribute is invalid.

Cause

The `<jsp:setProperty>` value attribute content is invalid.

User Action

Check the `<jsp:setProperty>` value attribute content.

PWC6059: Error: Attempt to clear a buffer that's already been flushed

Explanation

An attempt was made to clear a buffer that has already been flushed.

Cause

The `<jsp:forward>` tag location is inappropriate. The content has already been flushed.

User Action

Make sure that the `<jsp:forward>` tag location is correct.

PWC6060: Error: JSP Buffer overflow

Explanation

The JSP buffer has overflowed.

Cause

The content size not flushed has exceeded the value specified in the `<@page>` buffer attribute.

User Action

Check that the `<@page>` buffer attribute value or `out.flush()` location is appropriate.

PWC6074: Illegal to clear() when buffer size == 0

Explanation

`clear()` is invalid when the buffer size is 0.

Cause

The `<jsp:forward>` tag was specified when 'none' was specified for the `<@page>` tag buffer attribute.

User Action

To use the `<jsp:forward>` tag, specify the buffer size in the `<@page>` tag buffer attribute.

WARNING: ISJEE_PWC6087: Invalid value for the initParam usePrecompiled. Will use the default value of "false"

Explanation

An invalid value was set for "usePrecompiled". For this reason, "false" (the default value) is set.

System Action

The default value is used and processing continues.

User Action

Correct the value specified for "usePrecompiled" defined in Interstage Deployment Descriptor(sun-web.xml) contained in the deployed Web application, and then re-deploy the Web application.

13.46.21 PWC6100 to PWC6199

PWC6103: Unknown element ({0}) in taglib

Variable Information

{0}: Unknown element

Explanation

There is an unknown element ({0}) in taglib.

Cause

An unknown tag ({0}) was specified in the tag library descriptor <taglib> tag.

User Action

Check that the tag library descriptor <taglib> tag content is correct.

PWC6104: Unknown element ({0}) in tag

Variable Information

{0}: Unknown element

Explanation

There is an unknown element ({0}) in tag.

Cause

An unknown tag ({0}) was specified in the tag library descriptor <tag> tag.

User Action

Make sure that the tag library descriptor <tag> tag content is correct.

PWC6105: Unknown element ({0}) in tag-file

Variable Information

{0}: Unknown element

Explanation

There is an unknown element ({0}) in tag-file.

Cause

An unknown tag ({0}) was specified in the tag library descriptor <tag-file> tag.

User Action

Make sure that the tag library descriptor <tag-file> tag content is correct.

PWC6106: Unknown element ({0}) in attribute

Variable Information

{0}: Unknown element

Explanation

There is an unknown element ({0}) in attribute.

Cause

An unknown tag ({0}) was specified in the tag library descriptor <attribute> tag.

User Action

Make sure that the tag library descriptor <attribute> tag content is correct.

PWC6107: Unknown element ({0}) in variable

Variable Information

{0}: Unknown element

Explanation

There is an unknown element ({0}) in variable.

Cause

An unknown tag ({0}) was specified in the tag library descriptor <variable> tag.

User Action

Make sure that the tag library descriptor <variable> tag content is correct.

PWC6108: Unknown element ({0}) in validator

Variable Information

{0}: Unknown element

Explanation

There is an unknown element ({0}) in validator.

Cause

An unknown tag ({0}) was specified in the tag library descriptor <validator> tag.

User Action

Make sure that the tag library descriptor <validator> tag content is correct.

PWC6109: Unknown element ({0}) in validator's init-param

Variable Information

{0}: Unknown element

Explanation

There is an unknown element ({0}) in init-param of validator.

Cause

An unknown tag ({0}) was specified in the tag library descriptor <validator> tag <init-param> tag.

User Action

Make sure that the tag library descriptor <validator> tag <init-param> tag content is correct.

PWC6110: Unknown element ({0}) in function

Variable Information

{0}: Unknown element

Explanation

There is an unknown element ({0}) in function.

Cause

An unknown tag ({0}) was specified in the tag library descriptor <function> tag.

User Action

Make sure that the tag library descriptor <function> tag content is correct.

PWC6112: Failed to load or instantiate TagExtraInfo class: {0}

Variable Information

{0}: Class name

Explanation

Failed to load or instantiate the TagExtraInfo class.

Cause

The tag library descriptor <tei-class> tag content is incorrect.

User Action

Make sure that the tag library descriptor <tei-class> tag content is correct.

ERROR: ISJEE_PWC6117: File "{0}" not found

Variable Information

{0}: File name

Explanation

Cannot find the JSP file ({0}).

Cause

The file ({0}) does not exist.

User Action

Check that the file shown in the variable information exists.

Remarks

If this message is output as the Exception message part, it is output as follows:

PWC6117: File "{0}" not found

PWC6139: Unable to find setter method for attribute: {0}

Variable Information

{0}: Attribute name

Explanation

Cannot find the setter method for attribute {0}.

Cause

The setter method for the attribute described in the custom tag was not implemented in the tag handler class.

User Action

Make sure that the custom tag description and the tag handler class are correct.

PWC6149: The -uriroot option must specify a pre-existing directory

Explanation

The directory specified in the "-webapp" option is invalid.

System Action

JSP compilation is aborted.

User Action

Take the following actions:

- Specify an existing directory.
- Check the directory access permission.

PWC6150: Missing target: Must specify -webapp or -uriroot, or one or more JSP pages**Explanation**

The compilation target JSP was not specified.

System Action

JSP compilation is aborted.

User Action

Specify JSP using the following method:

- Specify the directory used to store JSP in the -webapp option.

PWC6151: The uriroot is not specified and cannot be located with the specified JSP file(s)**Explanation**

The uriroot path used to reference the resources required for JSP and the compilation was not specified.

System Action

JSP compilation is aborted.

User Action

Specify the -webapp option.

Check that the path specified in the -webapp option is correct.

PWC6152: uriRoot implicitly set to {0}**Variable Information**

{0}: Root path

Explanation

The path used to reference the resources required for the JSP compilation is set as uriroot.

System Action

JSP compilation continues.

PWC6165: ERROR-the file '{0}' generated the following general exception:**Variable Information**

{0}: JSP file path

Explanation

JSP compilation failed.

System Action

JSP compilation is aborted.

User Action

Refer to the other message(s) and exception information output, and correct JSP {0}.

PWC6166: The file argument '{0}' does not exist**Variable Information**

{0}: JSP file path

Explanation

The JSP file specified in the jspc command argument does not exist.

System Action

JSP compilation is aborted.

User Action

Make sure that the JSP file specified exists, and that the path is correct.

PWC6169: Failed to load or instantiate TagLibraryValidator class: {0}

Variable Information

{0}: Class name

Explanation

Failed to load or instantiate the TagLibraryValidator class.

Cause

- The class specified in the tag library descriptor <validator-class> tag does not exist.
- The class specified in the tag library descriptor <validator-class> tag has not inherited TagLibraryValidator.

User Action

- Make sure whether the class specified in the tag library descriptor <validator-class> tag exists.
- Make sure whether the class specified in the tag library descriptor <validator-class> tag has inherited TagLibraryValidator.

PWC6179: Body of {0} element must not contain any XML elements

Variable Information

{0}: Element name

Explanation

The body of element {0} must not contain any XML elements.

Cause

An XML element was specified in the <jsp:scriptlet> tag.

User Action

Check whether an XML element was specified in the <jsp:scriptlet> tag.

PWC6180: Unable to initialize TldLocationsCache

Explanation

Tag library cache processing failed.

System Action

JSP compilation is aborted.

User Action

Refer to the message and exception information that was also output.

WARNING: ISJEE_PWC6181: File {0} not found

Variable Information

{0}: File name

Explanation

Cannot find file {0}.

User Action

Cannot find a file required for the operation.
Check the application configuration, and then re-deploy.
If the problem is still not resolved, reinstall the product.

ERROR: ISJEE_PWC6183: Invalid PUBLIC ID: {0}

Variable Information

{0}: Invalid PUBLIC ID

Explanation

PUBLIC ID {0} is invalid.

Cause

The tag library descriptor <!DOCTYPE> tag PUBLIC ID is incorrect.

User Action

Check the tag library descriptor <!DOCTYPE> tag PUBLIC ID content.

PWC6188: The absolute uri: {0} cannot be resolved in either web.xml or the jar files deployed with this application

Variable Information

{0}: TLD file reference URI

Explanation

The TLD file used to reference {0} cannot be associated from the JAR file or web.xml in the Web application.

System Action

If this is output when verification is enabled at the time of the deployment, deployment processing fails.
If this is output at the time of the JSP execution, an error occurs and processing fails.

User Action

Possible causes are as follows:

- The TLD file does not exist in the Web application.
- The web.xml <taglib-location> tag was not specified. Alternatively, the content is invalid.

PWC6197: An error occurred at line: {0} in the jsp file: {1}

Variable Information

{0}: Row number
{1}: JSP name

Explanation

The syntax in line {0} of JSP {1} is incorrect.

Cause

Refer to the message and exception information that was also output.

User Action

Refer to the other message(s) and exception information output at the same time, and correct JSP {1}.

PWC6199: Generated servlet error

Explanation

Failed to compile the Servlet Java generated from JSP.

Cause

Refer to the message and exception information that was also output.

User Action

Refer to the message and exception information that was also output.

13.46.22 PWC6200 to PWC6299

PWC6203: Scripting elements (<%!, <jsp:declaration, <%=, <jsp:expression, <%, <jsp:scriptlet) are disallowed here.

Explanation

Scripting elements are disallowed here.

Cause

A scripting element was declared in JSP that has disabled scripting elements using the web.xml <scripting-invalid> tag.

User Action

Check whether a scripting element was declared in JSP.

PWC6216: Cannot specify both 'fragment' and 'type' attributes. If 'fragment' is present, 'type' is fixed as 'javax.servlet.jsp.tagext.JspFragment'

Explanation

The 'fragment' attribute and 'type' attribute cannot both be specified.

Cause

The type attribute was specified after true was specified for the fragment attribute in the tags file <%@attribute> tag.

User Action

Check the fragment attribute and type attribute in the tags file <%@attribute> tag.

WARNING: ISJEE_PWC6221: Bad value {0} in the url-pattern subelement in web.xml

Variable Information

{0}: Bad value

Explanation

There is a bad value ({0}) in the url-pattern subelement in web.xml.

Cause

The web.xml <jsp-property-group> tag <url-pattern> tag description is invalid.

User Action

Make sure that the web.xml <jsp-property-group> tag <url-pattern> tag is correct.

PWC6227: The attribute {0} specified in the standard or custom action also appears as the value of the name attribute in the enclosed jsp:attribute

Variable Information

{0}: Attribute name

Explanation

Attribute {0} specified for the standard or custom action also appears as the value of the name attribute in the enclosed jsp:attribute.

Cause

The tag library attribute was specified in the tag and in <jsp:attribute>.

User Action

Check the tag library description.

PWC6231: Invalid body-content ({0}) in tag directive

Variable Information

{0}: Invalid attribute

Explanation

There is an invalid body-content ({0}) in the tag directive.

Cause

The tags file <% @tag> tag body-content attribute content is invalid.

User Action

Check the tags file <% @tag> tag body-content attribute content.

PWC6239: According to TLD, tag {0} must be empty, but is not

Variable Information

{0}: Tag name

Explanation

According to TLD, tag {0} must be empty, but it is not.

Cause

Body was set for a tag for which empty was specified for <body-content> in the tag library descriptor.

User Action

Check whether any of the tag descriptions are invalid.

PWC6240: The value of the {0} attribute of the {1} directive and the value of the {2} attribute of the {3} directive in line {4} are the same.

Variable Information

{0}: First attribute name

{1}: First directive (tag) name

{2}: Second attribute name

{3}: Second directive (tag) name

{4}: Row number

Explanation

The values specified in the tags file are the same.

User Action

Check the tags file and remove any duplicated names.

PWC6241: Cannot find an attribute directive with a name attribute with a value "{0}", the value of this name-from-attribute attribute.

Variable Information

{0}: The name-from-attribute attribute value

Explanation

Cannot find an attribute directive that has a name attribute with a name-from-attribute attribute value {0}.

Cause

The <% @attribute> tag for the tags file <% @variable> tag name-from-attribute attribute does not exist.

User Action

Check the tags file <% @variable> tag content.

PWC6242: The attribute directive (declared in line {1} and whose name attribute is "{0}", the value of this name-from-attribute attribute) must be of type java.lang.String, is "required" and not a "rtexprvalue".

Variable Information

{0}: Attribute name

{1}: Row number

Explanation

The <% @attribute> tag content for the tags file <% @variable> tag name-from-attribute attribute is invalid.

Cause

Possible causes are as follows:

- 'false' was specified for the <% @attribute> tag required attribute.
- A value other than 'java.lang.String' was specified for the <% @attribute> tag type attribute.
- 'true' was specified for the <% @attribute> tag rtexprvalue attribute.

User Action

Check the tags file <% @attribute> tag content and remove the cause of the error.

PWC6262: High surrogate bits in UTF-8 sequence must not exceed 0x10 but found 0x{0}.

Variable Information

{0}: Illegal character code

Explanation

UTF-8 sequence high surrogate bits must not exceed 0x10.

Cause

The JSP file contains illegal characters.

User Action

Check the JSP file content.

PWC6263: Byte "{0}" not 7-bit ASCII.

Variable Information

{0}: Illegal character code

Explanation

The characters ({0}) are not 7 bit ASCII.

Cause

The JSP file contains illegal characters.

User Action

Check the JSP file content.

PWC6290: Either name-given or name-from-attribute attribute must be specified in a variable directive

Explanation

Either the name-given or the name-from-attribute attribute must be specified in a variable directive.

Cause

The name-given or name-from-attribute attribute was not specified in the tags file <%@variable> tag.

User Action

Specify the name-given or name-from-attribute attribute in the <%@variable> tag.

PWC6291: Cannot specify both name-given or name-from-attribute attributes in a variable directive

Explanation

The name-given and name-from-attribute attributes cannot both be specified in a variable directive.

Cause

The name-given and name-from-attribute attributes were both specified in the tags file <%@variable> tag.

User Action

Specify the name-given or name-from-attribute attribute in the <%@variable> tag.

PWC6292: Both or none of the name-from-attribute and alias attributes must be specified in a variable directive

Explanation

Either both the name-from-attribute and alias attributes must be specified in a variable directive, or neither of them can be specified.

Cause

Only one of the name-from-attribute and alias attributes was specified in the tags file <%@variable> tag.

User Action

Specify both attributes.

PWC6293: Null attribute name

Explanation

null attribute name.

Cause

null was specified for the attribute name.

User Action

Check the JSP file to see whether null was specified for the attribute name.

13.46.23 PWC6300 to PWC6399

PWC6306: The value for the useBean class attribute {0} is invalid.

Explanation

The value for the useBean class attribute {0} is invalid.

Cause

The class for the <jsp:useBean> tag class attribute does not exist.

User Action

Check the <jsp:useBean> tag class attribute content.

PWC6309: Illegal compilerSourceVM: {0}

Variable Information

{0}: Version specified in the -compilerSourceVM option

Explanation

The version specified in the -compilerSourceVM option is illegal.

System Action

JSP compilation is aborted.

User Action

Refer to 'jspc' and specify the correct version.

PWC6310: Illegal compilerTargetVM: {0}

Variable Information

{0}: Version specified in the -compilerTargetVM option

Explanation

The version specified in the -compilerTargetVM option is illegal.

System Action

JSP compilation is aborted.

User Action

Refer to 'jspc' and specify the correct version.

PWC6311: compiler TargetVM {0} too high

Variable Information

{0}: Version specified in the -compilerTargetVM option

Explanation

The version specified in the -compilerTargetVM option is higher than the JDK version set in the runtime environment.

System Action

JSP compilation is aborted.

User Action

Specify a value that does not exceed the JDK version set in the runtime environment.

PWC6325: {0} references invalid schema location: {1}

Variable Information

{0}: tld file name
{1}: schemaLocation setting

Explanation

schemaLocation specified in tld file {0} is invalid.

System Action

JSP compilation is aborted.

User Action

Check that the specified schemaLocation is correct.

PWC6333: Error page {0} is self-referencing

Variable Information

{0} :JSP file

Explanation

Possible causes are as follows:

- The JSP error page references itself.
- In the application web.xml, the JSP in which the error occurred was specified in the <include-prepare> tag so that another JSP will be loaded, and, the JSP in which the error occurred was specified on the error page of the included other JSP.

User Action

Review the application configuration and make sure that the content specified for the JSP error page definition is not the JSP itself.

PWC6338: Cannot convert "{0}" for the attribute {2} of the bean {1}: {3}

Variable Information

{0}: Value specified for the attribute for which the conversion failed
{1}: Bean class name of the attribute for which the conversion failed
{2}: Name of the attribute for which the conversion failed
{3}: Detail information

Explanation

Failed to convert the specified attribute value.

Cause

The following problems might exist for processing of the Bean class PropertyEditor displayed in the variable information:

- Cannot find the Bean class PropertyEditor displayed in the variable information
- An exception occurred in PropertyEditor processing

System Action

An exception is notified to JSP.

User Action

Based on the detail information, remove the cause of the error.

PWC6344: Error occurred while compiling JSP files.

Explanation

An error occurred while compiling JSP files.

Cause

Refer to the message and exception information that was also output.

User Action

Refer to the message and exception information that was also output.

PWC6345: Exception checking if recompile needed:

Explanation

An exception occurred during recompilation check.

Cause

Refer to the message and exception information that was also output.

User Action

Refer to the message and exception information that was also output.

PWC6346: Background compile failed.

Explanation

An error occurred while compiling JSP files.

Cause

Refer to the message and exception information that was also output.

User Action

Refer to the message and exception information that was also output.

13.46.24 PWC7000 to PWC7099

WARNING: ISJEE_PWC7000: Unexpected error forwarding or redirecting to login page

Explanation

An exception occurred when the login page was displayed.

System Action

Processing is continued.

User Action

Refer to the message and exception information that was also output and fix the error.

WARNING: ISJEE_PWC7001: Unexpected error forwarding or redirecting to error page

Explanation

An exception occurred when the error page was displayed.

System Action

Processing is continued.

User Action

Refer to the message and exception information that was also output and fix the error.

PWC7002: ApplicationDispatcher[{0}] {1}

Variable Information

{0}: Context path
{1}: Detail information

Explanation

The dispatch destination application does not exist.

System Action

Processing is continued.

User Action

- Make sure that the file shown in the context path exists.
 - Refer to the message and exception information that was also output and fix the error.
-

PWC7003: ApplicationDispatcher[{0}] {1}

Variable Information

{0}: Context path
{1}: Detail information

Explanation

The dispatch destination application does not exist.

System Action

Processing is continued.

User Action

- Make sure that the file shown in the context path exists.
 - Refer to the message and exception information that was also output and fix the error.
-

WARNING: PWC7004: Exception processing {0}

Variable Information

{0}: Error page

Explanation

An exception occurred when the error page was displayed.

System Action

Processing is continued.

User Action

Refer to the message and exception information that was also output and fix the error.

WARNING: PWC7005: Exception sending default error page

Explanation

An exception occurred while displaying the default error page.

System Action

Processing is continued.

User Action

Refer to the message and exception information that was also output and fix the error.

PWC7006: Error loading {0} {1}

Variable Information

{0}: Class loader information

{1}: Class name

Explanation

Failed to load the class.

Refer to the message that was also output.

System Action

The class is not loaded.

User Action

- Check whether the class exists in the Web application or classpath.
 - Make sure that the <servlet> tag <servlet-class> description defined in web.xml is correct.
 - Refer to the message and exception information that was also output and fix the error.
-

WARNING: PWC7007: SQL driver deregistration failed

Explanation

An exception occurred while de-registering the SQL driver.

System Action

Processing is continued.

INFO: PWC7008: {0} - jar not loaded. See Servlet Spec 2.3, section 9.7.2. Offending class:{1}

Variable Information

{0}: JAR file name

{1}: Class name

Explanation

The JAR file is illegal.

The JAR file might contain the servlet API (javax.servlet.Servlet).

System Action

The Jar file containing the servlet API is not registered in the class loader.

User Action

Check the JAR file content.

INFO: ISJEE_PWC7010: Session binding event listener threw exception

Explanation

The listener class valueBound method or valueUnbound method returned an exception.

System Action

The valueBound or valueUnbound method is not executed and processing continues.

User Action

Refer to the exception content, and remove the cause of the error.

WARNING: PWC7011: Error scanning {0}

Variable Information

{0}: tldCache.ser file

Explanation

Failed to read the tldCache.ser file.

System Action

Processing is continued.

User Action

Create the IJServer cluster again.

ERROR: ISJEE_PWC7012: Failure loading extension {0}

Variable Information

{0}: File name

Explanation

Failed to load library {0}.

System Action

Library {0} is not loaded and processing continues.

User Action

Refer to the exception information output, then take the following action:

- Make sure that the library path is valid.
- Make sure that the library exists.
- Make sure that read and write privileges were assigned for the library.
- **Solaris32/64** **Linux32/64**

Make sure that read and write privileges were assigned to the service operator user for the library.

ERROR: PWC7013: Invalid URI encoding; using HTTP default

Explanation

The request URI encoding is invalid.

System Action

Processing is continued.

The default request URI encoding (UTF-8) is used.

User Action

Set a correct value for [Request URI encoding] in the Web container settings.

ERROR: ISJEE_PWC7014: Javac exception {0}**Variable Information**

{0}: Exception information

Explanation

An exception occurred in the javac compilation.

System Action

JSP compilation is aborted.

User Action

Refer to the message and exception information that was also output and fix the error.

ERROR: PWC7015: Error compiling file:{0}**Variable Information**

{0}: File name

Explanation

An exception occurred in the javac compilation.

System Action

JSP compilation is aborted.

User Action

Refer to the message and exception information that was also output and fix the error.

ERROR: PWC7016: Exception parsing file**Explanation**

An error occurred while the JSP file was being read.

System Action

JSP compilation is aborted.

User Action

Refer to the message and exception information that was also output and fix the error.

ERROR: PWC7017: Exception initializing page context**Explanation**

An exception occurred initializing pageContext.

System Action

JSP compilation might not terminate normally.

User Action

Refer to the message and exception information that was also output and fix the error.

ERROR: PWC7018: Internal error flushing the buffer in release()**Explanation**

Buffer flush failed in JspWriter release processing.

System Action

Processing is continued.

User Action

close() might have been executed for the JspWriter object (the 'out' implicit variable) in JSP.

There is no need to execute JspWriter close() in JSP. Delete close().

PWC7019: {0}

Variable Information

{0}: Exception information

Explanation

An exception occurred in JSP compilation.

System Action

JSP compilation is aborted.

User Action

Based on exception information {0}, remove the cause of the error.

WARNING: PWC7020: TLD files should not be placed in "/WEB-INF/lib"

Explanation

The TLD files are in '/WEB-INF/lib'.

System Action

The files are not read by ClassLoader.

User Action

Move the TLD files to an appropriate location.

PWC7021: Unrecognized option: {0}. Use -help for help.

Variable Information

{0}: Option name

Explanation

An invalid option name was specified.

System Action

JSP compilation is aborted.

User Action

Refer to 'jspc' and specify the correct option.

PWC7022: **{0}

Variable Information

{0}: Exception information

Explanation

An exception occurred in JSP compilation.

System Action

The JSP compilation might fail.

User Action

Based on the exception information {0}, remove the cause of the error and then re-compile JSP.

PWC7023: Built File: {0}

Variable Information

{0}: JSP file name

Explanation

{0} was compiled.

ERROR: ISJEE_PWC7025: Env: {0}

Variable Information

{0}: Detail information

Explanation

Information used in the javac command

System Action

JSP compilation is aborted.

User Action

Refer to the detail information output and take the following action:

- Make sure that the compilation target JSP is correct.
- If other classes are referenced from JSP, then make sure that the correct classpath was set.

Follow the action advised in the other messages and the exception information output to remove the cause of the error.

13.47 Messages that Contain "RAR" in the Message ID

13.47.1 RAR5000 to RAR5099

ERROR: ISJEE_RAR5004: Error in XA recovery. See logs for more details.

System Action

Processing is continued.

User Action

Check the database and EIS logs and remove the cause of the error, then execute the processing again. Check whether the definition information for the JDBC connection pool or the connector connection pool is appropriate.

WARNING: ISJEE_RAR5005:Error in accessing XA resource with JNDI name [{0}] for recovery

Variable Information

{0}: JDBC connection pool name

Explanation

An error occurred during XA resource processing for recovery.

System Action

Processing is continued.

User Action

Take the action indicated in the message output immediately before this message.

WARNING: ISJEE_RAR5006:Failed the acquisition of the XA resource for transaction recovery processing

Explanation

Acquisition of the XA resource for transaction recovery processing failed.

System Action

Transaction recovery processing continues for the resources for which XA resource acquisition succeeded.

User Action

Refer to the message output immediately before this message and recover the resource for which the error occurred. If an indoubt transaction occurred for the resource for which the error occurred, refer to the resource manager manual and perform recovery processing.

ERROR: ISJEE_RAR5007:Error in creating data source object: [{0}]

Variable Information

{0}: Data source class name

Explanation

An error occurred during data source object generation.

System Action

Processing is continued.

User Action

Check whether the JDBC resource JNDI name is appropriate. Alternatively, check whether an appropriate class path is set for the JAR that includes the data source class specified for the JDBC connection pool.

ERROR: ISJEE_RAR5008:Error in creating a naming Reference for custom resource [{0}]

Variable Information

{0}: Custom resource JNDI name

Explanation

An error occurred while generating a reference name for the custom resource {0}.

System Action

Processing is continued.

User Action

Check whether the naming provider host name and port number are appropriate.

WARNING: ISJEE_RAR5009:Cannot load external-jndi-resource factory-class [{0}]

Variable Information

{0}: Factory class name

Explanation

The factory class of an external resource failed to load.

System Action

Processing is continued without registering the naming service of the resource for which the error occurred.

User Action

Check the following:

- Is the factory class name correct?
- Is a factory class or a class referenced by a factory class set in the IJServer cluster or Interstage Java EE DAS service class path?
- Was a factory class or a class referenced by a factory class compiled using a newer Java version than the version specified in the IJServer cluster or Interstage Java EE DAS service?

After performing the above checks, correct the class file or the settings and then restart the IJServer cluster or Interstage Java EE DAS service.

WARNING: ISJEE_RAR5010:external-jndi-resource factory-class [{0}] must be of type javax.naming.spi.InitialContextFactory

Variable Information

{0}: Factory class name

Explanation

The external resource factory class must implement the javax.naming.spi.InitialContextFactory interface.

System Action

Processing is continued without registering the naming service of the resource for which the error occurred.

User Action

Specify a factory class that implements the javax.naming.spi.InitialContextFactory interface and redefine the resource, then restart the IJServer cluster or Interstage Java EE DAS service.

ERROR: ISJEE_RAR5011:Exception thrown creating initial context for external JNDI factory '{0}'

Variable Information

{0}: External resource JNDI name

Explanation

An exception occurred during generation of the initial context for an external resource.

System Action

Processing is continued.

User Action

Check whether the external resource settings are appropriate.

ERROR: ISJEE_RAR5012:Cannot create external-jndi-resource factory-class '{0}'

Variable Information

{0}: External resource factory class

Explanation

Factory class generation failed for the external resource.

System Action

Processing is continued.

User Action

Check whether the external resource settings information is appropriate.

ERROR: ISJEE_RAR5015:Unexpected exception in loading class [{0}] by classloader

Variable Information

{0}: Factory class name

Explanation

The class failed to load.

System Action

Processing is continued without registering the naming service of the resource for which the error occurred.

User Action

Check the following:

- Was the correct class name specified when the resource was defined?
- Is the class output in the variable information, or a class referenced by that class, set in the IJServer cluster or Interstage Java EE DAS service class path?
- Was the class output in the variable information, or a class referenced by that class, compiled using a newer version of Java than the Java version specified in the IJServer cluster or Interstage Java EE DAS service?

After performing the above checks, correct the class file or the settings and then restart the IJServer cluster or Interstage Java EE DAS service.

ERROR: ISJEE_RAR5027:Unexpected exception in resource pooling

Explanation

An unexpected exception occurred during a resource pool operation.

System Action

An exception is returned to the calling source.

User Action

Refer to the exception information output immediately after this message and remove the cause of the error.

ERROR: ISJEE_RAR5029:Unexpected exception while registering component.

Explanation

An unexpected exception occurred while registering the component.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately after this message and remove the cause of the error.

ERROR: ISJEE_RAR5031:System Exception.

Explanation

A system exception occurred during a resource operation.

System Action

An exception is returned to the calling source.

User Action

Refer to the exception information output immediately after this message and remove the cause of the error.

WARNING: ISJEE_RAR5035:Unexpected exception while destroying resource.

Explanation

An exception occurred while discarding the resource.

System Action

Processing is continued.

User Action

Refer to the warning information output immediately before this message.

ERROR: ISJEE_RAR5038:Unexpected exception while creating resource for pool {0}. Exception : {1}

Variable Information

{0}: Connecting pool name

{1}: Exception information

Explanation

An unexpected exception occurred during connection generation for the connection pool {0}.

System Action

An exception is returned to the calling source. If this exception occurs when the connection pool is resized, processing is continued.

User Action

Refer to the exception information and remove the cause of the error.

Alternatively, take the following action:

- Check whether the property and other connection pool settings information is appropriate.
- Check whether the database is operating correctly.
- Check whether there is a problem with the connection between the database and the network.

ERROR: ISJEE_RAR5042:Error in accessing XA resource for recovery

Explanation

An error occurred during access to the XA resource for recovery processing.

System Action

Processing is continued.

User Action

Check whether the database is started. In addition, check whether the appropriate data source class name is specified for the JDBC connection pool.

ERROR: ISJEE_RAR5043:Error in creating data source object

Explanation

An error occurred during data source object generation.

System Action

Processing is continued.

User Action

Check whether the JDBC resource JNDI name is appropriate. Alternatively, check whether an appropriate class path is set for the library that includes the data source class specified for the JDBC connection pool.

ERROR: ISJEE_RAR5045:Error in creating a naming Reference for custom resource

Explanation

An error occurred while generating the reference name for the custom resource.

System Action

Processing is continued.

User Action

Check whether the naming provider host name and port number are appropriate.

ERROR: ISJEE_RAR5046:Unexpected exception in loading class by classloader [{0}]

Variable Information

{0}: Class name

Explanation

The class failed to load.

System Action

Processing is continued without registering the naming service of the resource for which the error occurred.

User Action

Check the following:

- Was the correct class name specified when the resource was defined?
- Is the class output in the variable information, or a class referenced by that class, set in the IJServer cluster or Interstage Java EE DAS service class path?
- Was the class output in the variable information, or a class referenced by that class, compiled using a newer version of Java than the Java version specified in the IJServer cluster or Interstage Java EE DAS service?

After performing the above checks, correct the class file or the settings and then restart the IJServer cluster or Interstage Java EE DAS service.

ERROR: ISJEE_RAR5047:Exception thrown creating initial context for external JNDI factory [{0}]

Variable Information

{0}: External resource JNDI name

Explanation

An exception occurred during generation of the initial context for an external resource.

System Action

Processing is continued.

User Action

Check whether the external resource settings are appropriate.

ERROR: ISJEE_RAR5048:Error in configuring JDBC resource**Explanation**

An error occurred while setting the JDBC resource settings.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately before or after this message, remove the cause of the error, and then execute the processing again.

WARNING: ISJEE_RAR5058: Error while Resizing pool {0}. Exception : {1}**Variable Information**

{0}: Connecting pool name
{1}: Exception information

Explanation

An exception occurred during connection pool {0} resizing.

System Action

Processing is continued.

User Action

Refer to the exception information and remove the cause of the error.

Alternatively, take the following action:

- Check whether information concerning a connection generation error is output in the database log. Refer to the output contents and remove the cause of the error.
- Check whether there is a problem with the connection between the database and the network.

ERROR: ISJEE_RAR5063 : Exception while creating XADataSource :{0}**Variable Information**

{0}: Datasource class name

Explanation

An exception occurred during generation of a data source object.

System Action

Processing is continued.

User Action

Check whether the data source class implements the javax.sql.XADataSource interface.

ERROR: ISJEE_RAR5065 : Exception while creating DataSource Object :{0}**Variable Information**

{0}: Datasource class name

Explanation

An exception occurred during generation of a data source object.

System Action

Processing is continued.

User Action

Check whether the data source class implements the `javax.sql.ConnectionPoolDataSource` interface.

ERROR: ISJEE_RAR5066 : Exception while getting pooled connection :{0}

Variable Information

{0}: Exception information

Explanation

An exception occurred while fetching `javax.sql.PooledConnection` from the data source.

System Action

Processing is continued.

User Action

Check whether the database is started. Also check whether the network status is normal between the IJServer cluster or Interstage Java EE DAS service and the database.

Refer to the message output immediately before or after this message and the database log information. Remove the cause of the error, then execute the processing again.

ERROR: ISJEE_RAR5068 : No such element in connection set

Explanation

Acquisition of a physical connection failed.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately before or after this message, remove the cause of the error, and then execute the processing again.

ERROR: ISJEE_RAR5069 : Exception while fetching EIS Product name :{0}

Variable Information

{0}: Exception information

Explanation

An exception occurred while fetching the database name.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately before or after this message, remove the cause of the error, and then execute the processing again. Check whether the database is started. Also check whether the network status is normal between the IJServer cluster or Interstage Java EE DAS service and the database.

ERROR: ISJEE_RAR5070 : Exception while fetching EIS Product version :{0}

Variable Information

{0}: Exception information

Explanation

An exception occurred while fetching the database version information.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately before or after this message, remove the cause of the error, and then execute the processing again. Check whether the database is started. Also check whether the network status is normal between the IJServer cluster or Interstage Java EE DAS service and the database.

WARNING: ISJEE_RAR5074: Table based validation detected invalid connection. Querying the table {0} failed.

Variable Information

{0}:Table name

Explanation

An invalid connection was detected during connection validation when "table" was selected. SELECT statement execution to the table {0} failed.

System Action

Processing is continued.

User Action

Check whether the DB is started. Also, check whether SELECT permission to the connection validation target table has been assigned to the user who executed the connection validation.

ERROR: ISJEE_RAR5087 : Exception while querying the EIS for max connections

Explanation

An exception occurred while fetching the maximum number of connections possible for the database.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately before or after this message, remove the cause of the error, and then execute the processing again. Check whether the database is started. Also check whether the network status is normal between the IJServer cluster or Interstage Java EE DAS service and the database.

ERROR: ISJEE_RAR5099: Wrong class name or classpath for Datasource Object

Explanation

The class name or the class path setting for the data source object is incorrect.

System Action

Data source read processing is interrupted.

User Action

Check whether the correct class name is specified in the JDBC connection pool definitions. Also, check whether the JDBC driver module is specified in the class path.

13.47.2 RAR5100 to RAR5199

ERROR: ISJEE_RAR5101 : Exception while instantiating {0}**Variable Information**

{0}: Datasource class name

Explanation

An exception occurred during instantiation processing of the data source object.

System Action

Processing is continued.

User Action

Revise the JDBC driver class path settings. Also, check whether the Security Manager policy is appropriate.

ERROR: ISJEE_RAR5102 : Access error while instantiating {0}**Variable Information**

{0}: Datasource class name

Explanation

An access error occurred during instantiation processing of the data source object.

System Action

Processing is continued.

User Action

Revise the JDBC driver class path settings.

ERROR: ISJEE_RAR5103 : Error setting java bean value : {0}**Variable Information**

{0}: Exception information

Explanation

An error occurred while setting an additional property value.

System Action

Processing is continued.

User Action

Check whether the property name and value of the additional property specified for the JDBC connection pool are appropriate.

ERROR: ISJEE_RAR5104 : Not a valid type for this method : {0}**Variable Information**

{0}: Additional property value

Explanation

The data type of the value specified for the additional property is invalid.

System Action

Processing is continued.

User Action

Check whether the property name and value of the additional property specified for the JDBC connection pool are appropriate. In particular, check whether a non-numeric value has been specified for a property which specifies a numeric-type value.

ERROR: ISJEE_RAR5105 : Connection Error Occurred : {0}

Variable Information

{0}: Exception information

Explanation

A connection error occurred.

System Action

Processing is continued.

User Action

Check whether rollback, auto-commit, meta-data, or a value other than table is specified as the validation method for connection validation. If table is selected as the validation method, check whether the table name is appropriate. Check the database started state and restart the database and the IJServer cluster or Interstage Java EE DAS service.

INFO: ISJEE_RAR5106 : AutoCommit based validation detected invalid connection.

Explanation

An invalid connection was detected during connection validation using auto-commit as the validation method.

System Action

Processing is continued.

User Action

Check whether the database is started. Also check whether the network status is normal between the database and the IJServer cluster or Interstage Java EE DAS service. Refer to the database log information to identify the cause of the error and remove it, and then execute the processing again.

INFO: ISJEE_RAR5107 : Meta-Data based validation detected invalid connection.

Explanation

An invalid connection was detected during connection validation using meta-data as the validation method.

System Action

Processing is continued.

User Action

Check whether the database is started. Also check whether the network status is normal between the database and the IJServer cluster or Interstage Java EE DAS service. Refer to the database log information to identify the cause of the error and remove it, and then execute the processing again.

ERROR: ISJEE_RAR5108 : Error while getting transaction isolation level :{0}

Variable Information

{0}: Transaction isolation level

Explanation

An error occurred while fetching the transaction isolation level.

System Action

Processing is continued.

User Action

Check whether the database is started.

ERROR: ISJEE_RAR5109: Error while setting transaction isolation level.

Explanation

The JDBC driver returned an SQLException during setting of the transaction isolation level.

System Action

An exception is returned to the calling source.

User Action

Take the following action:

- Check whether the correct transaction isolation level is set for the JDBC connection pool.
 - Check whether the transaction isolation level specified for the JDBC connection pool is supported by the JDBC driver.
-

ERROR: ISJEE_RAR5110 : Error creating managed Connection with user and password : {0}

Variable Information

{0}: Exception information

Explanation

An error occurred during generation of a physical connection with a user name and password specified.

System Action

Processing is continued.

User Action

Check whether the database is started. Check whether the additional property settings specified for the JDBC connection pool are appropriate.

ERROR: ISJEE_RAR5111 : Error casting to javax.sql.DataSource :{0}

Variable Information

{0}: Exception information

Explanation

An error occurred when casting the data source to the javax.sql.DataSource type.

System Action

Processing is continued.

User Action

Check whether the data source class specified for the JDBC connection pool implements the javax.sql.DataSource interface.

ERROR: ISJEE_RAR5112 : Error casting to javax.sql.XADataSource : {0}

Variable Information

{0}: Exception information

Explanation

An error occurred when casting the data source to the javax.sql.XADataSource type.

System Action

Processing is continued.

User Action

Check whether the data source class specified for the JDBC connection pool implements the javax.sql.XADataSource interface.

WARNING: ISJEE_RAR5114: Error allocating connection : [{0}]

Variable Information

{0}: Detail information

Explanation

Connection allocation failed.

System Action

An exception is returned to the calling source.

User Action

Refer to the detail information and remove the cause of the error.

WARNING: ISJEE_RAR5117: Failed to obtain/create connection from connection pool [{0}]. Reason : {1}

Variable Information

{0}: Connection pool name

{1}: Exception information

Explanation

Acquisition of a connection from the connection pool failed.

System Action

An exception is returned to the calling source.

User Action

Refer to the exception information and remove the cause of the error.

WARNING: ISJEE_RAR5118 : Rollback based validation detected invalid connection.

Explanation

Connection validation which uses rollback in validation method has detected invalid connections.

System Action

Processing is continued.

User Action

Check whether the database is running and the status of the network between the database and the IJServer cluster or the Interstage Java EE DAS service is normal. Refer to the database log and remove the cause of the error, then execute again.

WARNING: ISJEE_RAR5119: Failed to output access information to audit database. MSG= {0}

Variable Information

{0}: Detail information

Explanation

Failed to set the information for access to the audit log.

System Action

Processing is continued.

User Action

Refer to the message and remove the cause of the error.

13.47.3 RAR6000 to RAR6099

ERROR: ISJEE_RAR6000 : Invalid deployment descriptor - ra.xml. RarName? is {0}

Variable Information

{0}: Resource adapter name

Explanation

The deployment descriptor (ra.xml) of resource adapter {0} is invalid.

System Action

Processing is continued.

User Action

Revise ra.xml, correct the cause of the error, and re-deploy. In particular, if the <resourceadapter-class> tag, <inbound-resourceadapter> tag, and <adminobject> tag are all omitted for the connector1.5 ra.xml, it is recognized as connector1.0 compatible. In this case, define only one <connection-definition> tag.

ERROR: ISJEE_RAR6001 : Class Not found : {0}

Variable Information

{0}: JavaBean class name

Explanation

JavaBean class {0} was not found.

System Action

Processing is continued.

User Action

Revise RA.xml, correct the cause of the error, and re-deploy. In particular, if the <resourceadapter-class> tag, <inbound-resourceadapter> tag, and <adminobject> tag are all omitted for the connector1.5 ra.xml, it is recognized as connector1.0 compatible. In this case, define only one <connection-definition> tag.

ERROR: ISJEE_RAR6002 : Could not instantiate class : {0}

Variable Information

{0}: JavaBean class name

Explanation

Instantiation failed for JavaBean class {0}.

System Action

Processing is continued.

User Action

Check whether the JavaBean class of the ResourceAdapter, ManagedConnectionFactory, and ActivationSpec is handled appropriately in the RAR module.

In addition, check whether the correct JavaBean class name is specified in the deployment descriptor (ra.xml) of the resource adapter.

ERROR: ISJEE_RAR6004 : Privileged action error : {0}

Variable Information

{0}: Exception information

Explanation

An error occurred because there was unauthorized invalid access during JavaBean initialization.

System Action

Processing is continued.

User Action

Check the resource adapter security requirements.

ERROR: ISJEE_RAR6005: Could not create mcf : {0}

Variable Information

{0}: ManagedConnectionFactory class name

Explanation

ManagedConnectionFactory {0} could not be created.

System Action

Processing is continued.

User Action

- If the resource adapter name is "jmsra"
 - Check whether the properties specified for the JMS connection factory are appropriate.
- In other cases:
 - Check whether the resource adapter interface is implemented.
 - Check whether the ManagedConnectionFactory class is handled appropriately in the RAR module.
 - Check whether the appropriate properties are set for ManagedConnectionFactory in the connection pool.
 - Check the resource adapter document.

ERROR: ISJEE_RAR6007 : Failed to get Resources list from domain.xml

Explanation

Resource list acquisition failed.

System Action

Processing is continued.

User Action

Check whether the resource adapter settings are appropriate.

ERROR: ISJEE_RAR6008 : Failed to remove Active Resource Adapter from registry {0}

Variable Information

{0}: Resource adapter name

Explanation

Stop processing failed for the resource adapter {0}.

System Action

Processing is continued.

User Action

Refer to the resource adapter documentation and remove the problem that caused execution of the ResourceAdapter stop() method to fail.

ERROR: ISJEE_RAR6009: Connector Connection Pools/resources still exist. Remove all the connector connection pools and resources before undeploying rar : {0}

Variable Information

{0}: Resource adapter name

Explanation

An existing connector connection pool, connector resource, or managed object resource is still referencing the resource adapter {0} targeted for undeployment.

System Action

Processing is continued.

User Action

Check whether the cascade option of the undeploy subcommand is "true".

If "false" is set for the cascade option, delete all the connector connection pools, connector resources, and managed object resources that are referencing the resource adapter before undeploying the resource adapter.

ERROR: ISJEE_RAR6012 : Null pointer Exception : {0}

Variable Information

{0}: Module name

Explanation

A NullPointerException occurred.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately after this message to identify the error cause, correct the resource adapter class, and then execute the processing again.

ERROR: ISJEE_RAR6013 : Couldnot publish connector descriptor in JNDI : {0}

Variable Information

{0}: JNDI name

Explanation

Registration of the deployment descriptor for the JNDI name {0} failed.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately after this message, remove the cause of the error, and then execute the processing again.

ERROR: ISJEE_RAR6014 : Couldnot find the connector descriptor in the rar : {0}

Variable Information

{0}: Module name

Explanation

The module {0} deployment descriptor was not found.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately after this message, remove the cause of the error, and then execute the processing again.

ERROR: ISJEE_RAR6015 : Obtained Null connection pool object from jndi : {0}

Variable Information

{0}: Pool name of the connector connection pool

Explanation

Acquisition of the connector connection pool for the JNDI name {0} failed.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately after this message, remove the cause of the error, and then execute the processing again.

ERROR: ISJEE_RAR6016 : Active resource adapter not initialized.Rar Name : {0}

Variable Information

{0}: Resource adapter name

Explanation

Resource adapter initialization failed.

System Action

Processing is continued.

User Action

Check whether an error was output when the resource adapter was deployed. Refer to the exception information output immediately after this message, remove the cause of the error, and then execute the processing again.

ERROR: ISJEE_RAR6017 : Failed to get connection pool object via JNDI lookup : {0}

Variable Information

{0}: Pool name of the connector connection pool

Explanation

Use of JNDI lookup to fetch the connector connection pool failed.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately after this message, remove the cause of the error, and then execute the processing again.

ERROR: ISJEE_RAR6019: Failed to get connector descriptor from registry. RarName : : {0}

Variable Information

{0}: Resource adapter name

Explanation

Acquisition of resource adapter definition information failed.

System Action

Processing is continued.

User Action

- If the resource adapter is "jmsra":

Check whether the IJServer cluster or Interstage Java EE DAS service was started while the JMS message broker was in the stopped state.

- In other cases:

Resource adapter deployment or startup might have failed. Refer to the stack trace output before and after the error to identify the cause of the error and remove it. Then, re-deploy the resource adapter and start the IJServer cluster or Interstage Java EE DAS service.

ERROR: ISJEE_RAR6021:Failed to create MCF : {0}

Variable Information

{0}: Connection pool name

Explanation

Creation of ManagedConnectionFactory {0} failed.

System Action

Processing is continued.

User Action

Check the following and remove the cause of the error, and then execute the processing again.

- Check whether the ManagedConnectionFactory class is handled appropriately in the RAR module.
- Check whether the appropriate properties are set for ManagedConnectionFactory in the connection pool.

ERROR: ISJEE_RAR6022 : Failed to register MCF in connector registry : {0}

Variable Information

{0}: Pool name of the connector connection pool

Explanation

Registration of ManagedConnectionFactory failed.

System Action

Processing is continued.

User Action

Check whether the resource adapter class or ManagedConnectionFactory class processing threw a NullPointerException. Refer to the exception information output immediately after this message, remove the cause of the error, and then execute the processing again.

ERROR: ISJEE_RAR6023 : Null connector descriptor in registry. Module Name is : {0}

Variable Information

{0}: Module name

Explanation

Acquisition of the module {0} deployment descriptor failed.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately after this message, remove the cause of the error, and then execute the processing again.

ERROR: ISJEE_RAR6025 : Failed to read the connector deployment descriptors : {0}

Variable Information

{0}: Module deployment destination directory

Explanation

deployment descriptor read processing failed.

System Action

Processing is continued.

User Action

Check whether the resource adapter packaging is appropriate. Check whether the deployment descriptor is stored appropriately in the RAR module.

ERROR: ISJEE_RAR6026 : Failed to parse the connector deployment descriptors : {0}

Variable Information

{0}: Module deployment destination directory

Explanation

deployment descriptor read processing failed.

System Action

Processing is continued.

User Action

Check whether the resource adapter packaging is appropriate. Check whether the deployment descriptor is stored appropriately in the RAR module.

ERROR: ISJEE_RAR6028: This adapter is not 1.5 compliant : {0}**Variable Information**

{0}: JNDI name of managed object resource

Explanation

The resource adapter does not conform to connector1.5 conventions.

System Action

Processing is continued.

User Action

Check whether the <resourceadapter-class> tag is specified in the ra.xml, and then deploy correctly.

ERROR: ISJEE_RAR6030 : Failed to remove the MCF : {0}**Variable Information**

{0}: Connection pool name

Explanation

De-registration of ManagedConnectionFactory failed.

System Action

Processing is continued.

User Action

Restart the IJServer cluster or the Interstage Java EE DAS service.

ERROR: ISJEE_RAR6032 : Wrong connector resource entry in the domain.xml. No corresponding connection pool created. Pool Name: {0}**Variable Information**

{0}: Connection pool name

Explanation

A connection pool entry is incorrect. There is no connection pool corresponding to the pool name {0}.

System Action

Processing is continued.

User Action

Check whether the specified connection pool is already deleted. If so, create the pool again.

ERROR: ISJEE_RAR6034 : Wrong admin object entry in the domain.xml. No corresponding resource adapter deployed. Resource Adapter Name : {0}**Variable Information**

{0}: Resource adapter name

Explanation

A managed object resource entry is incorrect. There is no connector connection pool corresponding to the pool name {0}.

System Action

Processing is continued.

User Action

Check whether the specified managed object resource is already deleted.

ERROR: ISJEE_RAR6035: Resource adapter start failed : {0}

Variable Information

{0}: Resource adapter name

Explanation

Resource adapter start processing failed.

System Action

Processing is continued.

User Action

Refer to the stack trace output before and after the error to identify the cause of the error and remove it, and then restart the IJServer cluster or Interstage Java EE DAS service.

ERROR: ISJEE_RAR6036 : Resource adapter association failed : {0}

Variable Information

{0}: Exception information

Explanation

The processing to set the ManagedConnectionFactory resource adapter association failed.

System Action

Processing is continued.

User Action

The ManagedConnectionFactory setResourceAdapter() method returned a ResourceException. Refer to the exception information output immediately after this message to identify and remove the cause of the error, and then execute the processing again.

ERROR: ISJEE_RAR6037 : Resource adapter threw an exception while stopping

Explanation

An exception occurred while stopping the resource adapter {0}.

System Action

Processing is continued.

User Action

Remove the problem that caused execution of the resource adapter {0} stop() method to fail.

13.47.4 RAR7000 to RAR7099

WARNING: ISJEE_RAR7004: MDB deployment is still happening. Cannot create end point now.

Explanation

MDB container initialization is in progress. An end point cannot be created yet.

System Action

Processing is continued.

User Action

Wait until MDB container initialization is completed, and then call the resource adapter createEndpoint(XAResource) API.

WARNING: ISJEE_RAR7005 : Class loader not found : [{0}]

Variable Information

{0}: Exception information

Explanation

The class loader was not found.

System Action

The ContextClassLoader of the current thread is allocated and processing is continued.

ERROR: ISJEE_RAR7006 : ActivationSpec validation failed : [{0}]

Variable Information

{0}: Exception information

Explanation

ActivationSpec validation failed. The ActivationSpec Java Bean validate() method returned an exception.

System Action

Processing is continued.

User Action

Check whether the appropriate Activation Config is specified in the Message-driven Bean. Or, for a connector, check whether the appropriate properties are specified in the ActivationSpec Java Bean. Refer to the exception information output immediately after this message, remove the cause of the error, and then execute the processing again.

ERROR: ISJEE_RAR7007 : The method is not defined : [{0}]

Variable Information

{0}: Method name

Explanation

The method name {0} is not defined in the Message Endpoint.

System Action

Processing is continued.

User Action

The beforeDelivery() method, the afterDeliver() method, and the release() method are the only methods that can be called in a Message Endpoint. Revise the resource adapter implementation to remove the cause of the error, and then execute the processing again.

INFO: ISJEE_RAR7008: Initialized monitoring registry and listeners

Explanation

The monitor and listener for monitoring connectors have been initialized.

System Action

Processing is continued.

WARNING: ISJEE_RAR7010: Pool not reachable.

Explanation

The connection pool was not found.

System Action

Processing is continued.

User Action

Check whether the pool name of the JDBC connection pool is appropriate. Alternatively, check whether creation of the JDBC connection pool ended normally.

WARNING: ISJEE_RAR7014: Error reading Connector Service Element from domain.xml while trying to get shutdown-timeout-in-seconds value. Continuing with the default shutdown timeout value

Explanation

Shutdown timeout read processing failed.

System Action

Processing is continued using the default shutdown timeout value.

User Action

Check whether the specified shutdown timeout value is within the range of data types and values that can be specified. Restart the IJServer cluster or Interstage Java EE DAS service to enable the specified value.

ERROR: ISJEE_RAR7092 : Incorrect transaction support level. This RAR has a lower tx support level in its ra.xml transaction-support attribute : {0}

Variable Information

{0}: Pool name of the connector connection pool

Explanation

The transaction support level is invalid.

System Action

Processing is continued.

User Action

Specify a level equal to or lower than the transaction support level specified in the ra.xml.

WARNING: ISJEE_RAR7093: Error while cleaning up ManagedConnection

Explanation

An exception occurred during ManagedConnection collection processing.

System Action

Processing is continued.

User Action

Remove the cause of the error issued by the resource adapter ManagedConnection cleanup() method. Alternatively, check whether the ManagedConnectionFactory equals() method is implemented appropriately.

INFO: ISJEE_RAR7094: {0} shutdown successful.

Variable Information

{0}: Datasource name

Explanation

Database {0} stop processing succeeded.

System Action

Processing is continued.

WARNING: ISJEE_RAR7096: Exception {2} while trying to set the value {1} on property {0}

Variable Information

{0}: Property name
{1}: Property value
{2}: Detail error message

Explanation

An exception occurred while value {1} was being set for the property name {0}.

System Action

Processing is continued.

User Action

Check whether the value specified for the property name is correct. Remove the cause of the error and then execute the processing again.

WARNING: ISJEE_RAR7097: No setter method present for the property {0} in the class {1}

Variable Information

{0}: Property name
{1}: Class name

Explanation

A setter method for property {0} is not defined in the class {1}.

System Action

Processing is continued.

User Action

Check whether a setter method is defined for the property {0}.

WARNING: ISJEE_RAR7099: Cannot unregister pool from monitoring registry: {0}

Variable Information

{0}: Connection pool name

Explanation

The connection pool monitoring target failed to be released.

System Action

Processing is continued.

User Action

Before restarting monitor logging, restart the IIServer cluster.

13.47.5 RAR7100 to RAR7199

ERROR: ISJEE_RAR7109: Error while loading jdbc resources during recovery : {0}**Variable Information**

{0}: JDBC resource JNDI name

Explanation

The JDBC resource failed to load.

System Action

Processing is continued.

User Action

Delete the resource for which the error was issued. Refer to the stack trace output before and after the error to identify and remove the cause of the error, and then perform re-registration.

ISJEE_RAR7110: Error while loading connector resources during recovery : {0}**Variable Information**

{0}: JMS connection factory JNDI name or connector resource JNDI name

Explanation

The JMS connection factory or a connector resource failed to load during recovery processing. JNDI lookup processing failed for the JMS connection factory or the connector resource.

System Action

Processing is continued.

User Action

- For a JMS connection factory JNDI name:
 - Check whether the IJServer cluster was started while the JMS message broker was in the stopped state.
- For a connector resource JNDI name:
 - Connector resource registration might have failed. Refer to the exception information output before and after this message, remove the cause of the error, and then register the connector resource again.

ERROR: ISJEE_RAR7119: Unable to get XADataSource**Explanation**

An error occurred while casting the data source to the javax.sql.XADataSource type.

System Action

Processing is continued.

User Action

Check whether the data source class specified for the JDBC connection pool implements the javax.sql.XADataSource interface.

ERROR: ISJEE_RAR7120: Unable to get ConnectionPoolDataSource**Explanation**

An error occurred while casting the data source to the javax.sql.ConnectionPoolDataSource type.

System Action

Processing is continued.

User Action

Check whether the data source class specified in the JDBC connection pool implements the javax.sql.ConnectionPoolDataSource interface.

WARNING: ISJEE_RAR7126: Error enlisting resource to transaction. Returned resource to pool. Pool name: {0}

Variable Information

{0}: Connection pool name

Explanation

An error occurred while registering the resource to the transaction.

System Action

The resource is returned to the connection pool and an exception is returned to the application.

User Action

Refer to the exception information output immediately prior to this message, remove the cause of the error, and then execute the application again.

Alternatively, refer to the information output at {0}, take the following action, and then execute the application again:

- Check whether the database is operating correctly.
- Check whether there is a problem with the connection between the database and the network.

ERROR: ISJEE_RAR7137: Unable to create default resource for the resource-adapter

Explanation

Creation of the resource adapter default resource failed.

System Action

Activation of the resource adapter is interrupted and processing is continued.

User Action

Refer to the exception information output immediately after this message, remove the cause of the error, and then execute again. Alternatively, check whether the contents specified in the ra.xml are correct.

INFO: RAR7139: The mcf being used to allocate the connection and the MCF in the pool are not equal.

Explanation

The ManagedConnectionFactory used to allocate the logical connection does not match the ManagedConnectionFactory in the pool.

System Action

Processing is continued.

User Action

Check for errors in the ManagedConnectionFactory equals() method.

13.47.6 RAR8000 to RAR8099

WARNING: ISJEE_RAR8000: The method {0} is not present in the class : {1}

Variable Information

{0}: Method name

{1}: Class name

Explanation

The method {0} is not defined in the class {1}.

System Action

Processing is continued.

User Action

Take the following action:

1. Check whether the method that caused the warning is defined in the relevant class.
2. Check whether the config property names specified for the following resources are correct:
 - JMS resource config property name
 - Resource adapter, connector connection pool, and managed object config property names

13.47.7 RAR9000 to RAR9099

ERROR: ISJEE_RAR9003: Failed to bind connector resource in JNDI

Explanation

Registration of the resource to JNDI failed.

System Action

Processing is continued without registering the resource for which the error occurred.

User Action

Delete the resource for which the error was issued. Refer to the stack trace output before and after the error to identify and remove the cause of the error, and then perform re-registration.

ERROR: ISJEE_RAR9004: failed to load resources/ResourceAdapter

Explanation

The resource adapter failed to load.

System Action

Processing is continued without registering the resource for which the error occurred.

User Action

Delete the resource for which the error was issued. Refer to the stack trace output before and after the error to identify and remove the cause of the error, and then perform re-registration.

INFO: ISJEE_RAR9009: JMS Service Connection URL is :{0}

Variable Information

{0}: URL

Explanation

The URL of the JMS service connection is the URL shown in the variable information.

WARNING: ISJEE_RAR9012: Exception occurred when trying to check if destination exists

Explanation

An exception occurred while checking whether the JMS send destination resource exists.

System Action

Processing is continued.

User Action

- Check whether the JMS message broker is started.
- Alternatively, check whether the network status is normal between the IJServer cluster and the JMS message broker.
- Ensure that the administrator user ID/password set for the JMS service definition items of the JMS service are valid.

INFO: ISJEE_RAR9013: Destination {0} exists in broker

Variable Information

{0}: Physical storage destination

Explanation

The physical storage destination exists in the broker.

ERROR: ISJEE_RAR9014: Exception while trying to find properties

Explanation

An exception occurred while searching for properties.

System Action

Processing is continued.

User Action

Follow the procedure below:

- Refer to the exception information output immediately before or after this message to identify/remove the cause of the error, then re-execute.
- If this message was output during the connector deployment, then it might not have completed normally. Remove the cause of the error, then redeploy the connector.
- There might insufficient Interstage Java EE DAS service Heap. Refer to "[Chapter 6 Java EE Function Tuning](#)" > "[6.18 Interstage Java EE DAS Service Heap Size and Address Space](#)", increase the heap size, then re-execute processing.

WARNING: RAR9023: Error while getting Application DD from AppsManager for app {0}

Variable Information

{0}: Module name

Explanation

An error occurred while fetching the deployment descriptor of the application {0}.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately after this message, remove the cause of the error, and then execute the processing again.

INFO: ISJEE_RAR9032: Got the thread pool for : {0}

Variable Information

{0}: Thread pool ID

Explanation

The thread pool {0} is set in WorkManager.

ERROR: ISJEE_RAR9033: Threadpool {0} not found

Variable Information

{0}: Thread pool ID

Explanation

The thread pool {0} was not found.

System Action

Processing is continued.

User Action

Check whether the thread pool {0} exists. Allocate an existing thread pool ID to the resource adapter and then restart the IJServer cluster or Interstage Java EE DAS service.

ERROR: ISJEE_RAR9034: An error occurred during instantiation of the work manager

Explanation

An error occurred during WorkManager initialization.

System Action

Processing is continued.

User Action

Refer to the message output immediately before this message, remove the cause of the error, and then execute the processing again.

WARNING: ISJEE_RAR9035: A potential connection leak detected for connection pool {0}. The stack trace of the thread is provided below : {1} {2}

Variable Information

{0}: Connection pool name

{1}: Stack trace when the connection was obtained

{2}: Connection pool performance information (displayed only if monitor logging is enabled)

Explanation

A potential connection leak was detected.

System Action

Processing is continued.

User Action

Refer to the stack trace to determine where the potential connection leak occurred and remove the cause of the error.

INFO: ISJEE_RAR9041: Recovery of Inbound Transactions started.

Explanation

Inbound transaction recovery has started.

ISJEE_RAR9050: Assuming destination type {0} for MDB {1} from administered object {2}

Variable Information

{0}: Destination type
{1}: EJB application name
{2}: Administered object

Explanation

The managed object {2} used by Message-driven Bean {1} is operating as the {0} type.

ERROR: ISJEE_RAR9051: Missing Destination JNDI Name

Explanation

The JNDI name of the JMS reception destination resource definition (JMS Destination) was not obtained.

System Action

Start processing is interrupted for the application that caused the error.

User Action

Revise the EJB deployment descriptor (ejb-jar.xml) of the deployed application or the Interstage EJB application deployment descriptor (sun-ejb-jar.xml) definition and define the JNDI name of the JMS reception destination resource definition (JMS Destination). Re-execute the application.

INFO: ISJEE_RAR9052: JMS resource recovery has created CFs = {0}

Variable Information

{0}: ConnectionFactory quantity created

Explanation

The JMS resource recovery processing performed ConnectionFactory creation.

WARNING: ISJEE_RAR9053: Unable to set LogWriter for MCF [{0}] due to the following exception : {1}

Variable Information

{0}: Class name
{1}: Exception information

Explanation

Setting the LogWriter settings to the ManagedConnectionFactory failed.

System Action

Processing is continued.

User Action

Refer to the exception information at {1} and the exception information output immediately prior to this message to identify the cause of the error. Revise the processing in the setLogWriter method of the resource adapter ManagedConnectionFactory class to remove the cause of the error.

WARNING: ISJEE_RAR9057: ResourceException while trying to get invalid connections from MCF

Explanation

An exception occurred while fetching an invalid connection from the ManagedConnectionFactory.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately after this message, remove the cause of the error, and then execute again.

WARNING: ISJEE_RAR9058: Exception while trying to get invalid connections from MCF

Explanation

An exception occurred while fetching an invalid connection from the ManagedConnectionFactory.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately after this message, remove the cause of the error, and then execute again.

WARNING: ISJEE_RAR9059: Exception occurred in MQ connector runtime : {0}

Variable Information

{0}: Exception information

Explanation

An exception occurred in JMS connector processing.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately after this message, remove the cause of the error, and then execute again.

WARNING: ISJEE_RAR9060: Exception while associating the resource adapter to the JavaBean

Explanation

An exception while associating the resource adapter with the JavaBean.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately after this message, remove the cause of the error, and then execute again.

WARNING: ISJEE_RAR9061:Error in creating a thread to detect potential connection leaks.

Explanation

Failed to generate the thread to detect connection leaks.

System Action

Processing is continued.

User Action

Refer to the exception information output immediately after this message, and remove the cause of the error.

13.48 Messages that Contain "SEC" in the Message ID

13.48.1 SEC1000 to SEC1099

WARNING: ISJEE_SEC1000: Caught exception.**Explanation**

An exception was thrown.

System Action

Refer to the message that was also output.

User Action

Refer to the exception information that was also output and fix the error.

INFO: ISJEE_SEC1002: Security Manager is OFF.**Explanation**

The Security Manager is disabled.

System Action

The Security Manager is disabled and processing is continued.

13.48.2 SEC1100 to SEC1199

WARNING: ISJEE_SEC1100: Disabled realm [{0}] due to errors.**Variable Information**

{0}: Security realm name

Explanation

The security realm {0} is disabled because an error occurred.

System Action

The security realm {0} is disabled and processing is continued.

User Action

Refer to the message:SEC1000 that was also output and fix the error.

Possible causes are as follows:

- The URL of the directory service to be connected is not set.
Check whether the URL of the directory service to be connected is set.
 - The base DN is not set.
Check whether the base DN is set.
-

ERROR: ISJEE_SEC1101: No realms available. Authentication services disabled.**Explanation**

No security realms are available. The authentication service is disabled.

System Action

Authentication processing is disabled, and processing continues.

User Action

There might be a problem with the security realm settings. Check the following, and if they apply then correct the settings:

- Are the settings valid?
- Was a special realm item not set?

If exception information was output before or after this message, then refer to the exception information and remove the cause of the error.

WARNING: ISJEE_SEC1106: Error during LDAP search with filter [{0}].**Variable Information**

{0}: Search condition

Explanation

An error occurred during the Interstage directory service search.

System Action

Processing is interrupted.

User Action

Perform the following checks:

- Check that the condition setting for user search (search-filter) is valid.
- Check that the top directory DN setting for searching for groups (group-base-dn) is valid.
- Refer to the message:SEC1000 that was also output and fix the error.

WARNING: ISJEE_SEC1109: Error reading file realm data.**Explanation**

The processing to read information required for file realm operations failed.

System Action

Processing is interrupted.

User Action

- The information in the key file is invalid. Check that the path that was set in the key file (the realm additional property 'file') is valid.
- The information in the key file is invalid. Check whether the information in the key file is corrupt. Use the Java EE Management Console or command to edit the user and group.

SEC1113a: Unsupported auth-realm type**Explanation**

Only file realm operations are supported.

System Action

Processing is interrupted.

User Action

Check the realm type.

INFO: ISJEE_SEC1140: Policy provider configuration overridden by property {0} with value {1}**Variable Information**

{0}: Property name

{1}: Value

Explanation

The policy provider settings are replaced by the value {1} specified for the property {0}.

System Action

Processing is continued.

User Action

Check whether the value output in the variable information is correct.

INFO: ISJEE_SEC1143: Loading policy provider {0}.

Variable Information

{0}: Policy provider class name

Explanation

Policy provider {0} is being read.

System Action

Processing is continued.

ERROR: ISJEE_SEC1144: Error while installing policy provider:

Explanation

An error occurred while installing the policy provider.

System Action

IJServer cluster startup is interrupted.

User Action

Check whether the value output in the variable information of message SEC1140 output at the same time is correct.

WARNING: ISJEE_SEC1146: Policy configuration factory overridden by property {0} with value {1}

Variable Information

{0}: Property name

{1}: Value

Explanation

The policy provider settings are replaced by the value {1} specified for the property {0}.

System Action

Processing is continued.

User Action

Check whether the value output in the variable information is correct.

13.48.3 SEC5000 to SEC5099

INFO: ISJEE_SEC5046: Audit: Authentication refused for [{0}].

Variable Information

{0}: User ID

Explanation

User {0} authentication was refused.

System Action

Processing is interrupted.

User Action

Possible causes are as follows:

- The user ID or password is incorrect.

Check whether the user ID or password is incorrect.

- The security realm settings are incorrect.

Check for errors in the security realm settings.

Refer to the Interstage Java EE Admin Console help for information on the security realm settings.

- The Interstage directory service settings are incorrect.

Check for errors in the Interstage directory service settings.

Refer to the "Directory Service Operations guide" for information on the Interstage directory service settings.

- The Interstage directory service is not started.

Check whether the Interstage directory service is started.

If the problem is not resolved, also refer to "[14.2.9 When a Message is Output Stating that Authentication has Failed](#)".

ERROR: ISJEE_SEC5054: Certificate has expired: {0}

Variable Information

{0}: Certificate

Explanation

The certificate has expired.

System Action

Processing is continued.

User Action

Check the contents of the certificate.

WARNING: ISJEE_SEC5055: Role mapping conflicts found in application {0}. Some roles may not be mapped.

Variable Information

{0}: Application type

Explanation

The security-role-mapping definitions are inconsistent.

System Action

Processing is continued.

User Action

Check the security-role-mapping definitions in the Interstage Deployment Descriptor.

13.48.4 SEC9000 to SEC9099

SEC9000: Login failed: {0}

Variable Information

{0}: Exception information

Explanation

Login authentication failed.

System Action

Processing requiring authentication is aborted.

User Action

Follow the action advised in the other messages and the exception information output to remove the cause of the error.

Also check the Interstage Java EE DAS service and Interstage Java EE Node Agent service server logs, then remove the cause of the error displayed in the message and exception information output before or after the erroneous operation. If the problem is still not resolved, refer to "[Chapter 14 Troubleshooting](#)" > "[14.9 Java EE Security Errors](#)".

SEC9001: Failed file login for {0}.

Variable Information

{0}: User ID

Explanation

Login authentication using the file realm failed.

System Action

Processing requiring authentication is aborted.

User Action

Perform the following checks:

- Make sure that the password set for the {0} is valid.
- Make sure that the key file settings are valid.
- Follow the action advised in the other messages and the exception information output to remove the cause of the error.

If the problem is not resolved, also refer to "[14.2.9 When a Message is Output Stating that Authentication has Failed](#)".

SEC9002: FileLoginModule requires FileRealm.

Explanation

The specified login module is required in the file realm.

System Action

Processing is continued.

User Action

Make sure that the JAAS context settings are valid.

SEC9003: LDAP bind failed for {0}.

Variable Information

{0}: DN

Explanation

The association with LDAP failed.

System Action

Processing requiring authentication is aborted.

User Action

Make sure that the condition setting for group search is valid.

SEC9004: LDAPLoginModule requires LDAPRealm.

Explanation

The specified login module is required in the ldap realm.

System Action

Processing is continued.

User Action

Make sure that the JAAS context settings are valid.

SEC9005: Can not read or create auth realm keyfile for path: {0}

Variable Information

{0}: Key file

Explanation

Failed to read or create the specified key file.

System Action

Processing is continued.

User Action

Perform the following checks:

- Make sure that the specified path exists.
 - Make sure that the specified path does not contain characters restricted in the OS.
 - Make sure that there are access privileges for the directory or key file on the specified path.
-

SEC9006: Failed OS login for {0}.{1}

Variable Information

{0}: User ID

{1}: Detail information

Explanation

Login authentication using the operating system realm failed.

System Action

Processing requiring authentication is interrupted.

User Action

Take the following actions:

- Ensure that user ID {0} and the password are valid.
- Check the user ID {0} settings using the user manager tool of the operating system.
- Follow the action advised in the other messages and the exception information output to remove the cause of the error.
- If user ID {0} or password has not been specified or the asadmin login command has not been executed, then collect investigation information using the .asadminpass file and iscollectinfo command and contact Fujitsu technical support.

- If this message was output to the server instance or server.log of the Interstage Java EE Node Agent service, collect investigation information using the iscollectinfo command and contact Fujitsu technical support.

If the problem persists, refer to "[Chapter 14 Troubleshooting](#)" > "[14.2 Operational Errors](#)" > "[14.2.9 When a Message is Output Stating that Authentication has Failed](#)".

SEC9007: Login failed for null user.

Explanation

A user ID was not specified.

System Action

Processing requiring authentication is interrupted.

User Action

Ensure that the user ID is valid.

SEC9008: OSLoginModule requires OSRealm.

Explanation

The specified login module requires the os realm.

System Action

Processing requiring authentication is interrupted.

User Action

Ensure that the JAAS context settings are valid.

SEC9009: OSRealm internal error occurred. {0}

Variable Information

{0}: Detail information

Explanation

An error occurred during os realm processing.

System Action

Processing requiring authentication is interrupted.

User Action

Use the iscollectinfo command to collect investigation information and contact your service engineer.

13.49 Messages that Contain "SERVER" in the Message ID

13.49.1 SERVER1000 to SERVER1099

INFO: ISJEE_SERVER1000: Starting Interstage Application Server ...

Explanation

The server instance is starting.

INFO: ISJEE_SERVER1003: MBeanServer started: {0}

Variable Information

{0}: Class name of the platform MBeanServer

Explanation

The MBeanServer has started.

INFO: ISJEE_SERVER1007: Application server startup complete.

Explanation

The server instance has started.

ERROR: ISJEE_SERVER1009: Server Startup failed. Exiting...

Explanation

Stop processing is starting because the server instance failed to start.

System Action

Processing is interrupted.

User Action

Take the action indicated in the error or warning message output prior to this message.

ERROR: ISJEE_SERVER1010: Server stopped due to Server startup failure.

Explanation

The server instance was stopped because start processing failed.

System Action

Processing is interrupted.

User Action

This message is output immediately before the server instance process is stopped.

Take the action indicated in the error or warning message output prior to this message.

INFO: ISJEE_SERVER1013: Server shutdown complete.

Explanation

Server instance stop processing is completed.

13.49.2 SERVER1100 to SERVER1199

ERROR: ISJEE_SERVER1102: Service {0} cannot be initialized! : {1}

Variable Information

{0}: Service name

{1}: Exception information

Explanation

Service initialization failed.

System Action

IJServer cluster startup is interrupted.

User Action

Refer to the exception information and the messages output before and after this message and remove the cause of the error.

- If "ServerLifecycleException: For input string:" was output:

Review the value specified for the RMI registry connection port used by the JMX connector (for details on the valid values, refer to "[7.8 Operating Environment-related Definition Items](#)" > "[7.8.1 Properties Used when Creating and Updating Definitions](#)" > "System property" > "JMX_SYSTEM_CONNECTOR_PORT").

ERROR: ISJEE_SERVER1103: Service {0} cannot be started! : {1}**Variable Information**

{0}: Service name
{1}: Exception information

Explanation

Service startup failed.

System Action

IJServer cluster startup is interrupted.

User Action

Refer to the exception information and the messages output before and after this message and remove the cause of the error.

- If "Listen failed on port: Address already in use: JVM_Bind" was output:

Review the port number - it may already be in use by another service or application in the system.

ERROR: ISJEE_SERVER1104: Service {0} is not ready! {1}**Variable Information**

{0}: Service name
{1}: Exception information

Explanation

Service startup failed.

System Action

Service startup is interrupted and IJServer cluster startup continues.

User Action

Refer to the exception information and the messages output before and after this message and remove the cause of the error.

INFO: ISJEE_SERVER1105: Server shutdown in progress...**Explanation**

Server instance stop processing has started.

13.50 Messages that Contain "SHOALX" in the Message ID

13.50.1 SHOALX0000 to SHOALX0099

WARNING: ISJEE_SHOALX0001: Could not get an instance of Distributed State Cache to fetch member details for {0}**Variable Information**

{0}: Detail information

Explanation

An error occurred for the Distributed State Cache control for the group management service.

System Action

Processing is continued.

User Action

Check for errors in the group management service settings.

INFO: ISJEE_SHOALX0003: Sending FailureNotificationSignals to registered Actions. Member: {0}...

Variable Information

{0}: Server instance name

Explanation

A signal was sent notifying failure of the group management service.

System Action

Processing is continued.

INFO: ISJEE_SHOALX0004: Sending FailureRecoveryNotification to component {0}

Variable Information

{0}: Detail information

Explanation

A signal was sent notifying recovery of the group management service.

System Action

Processing is continued.

INFO: ISJEE_SHOALX0005: Sending FailureSuspectedSignals to registered Actions. Member:{0}...

Variable Information

{0}: Server instance name

Explanation

A signal was sent to check for failure of the group management service.

System Action

Processing is continued.

WARNING: ISJEE_SHOALX0006: ActionException : {0}

Variable Information

{0}: Detail information

Explanation

A group management service control error occurred.

System Action

Processing is continued.

User Action

Refer to the detail information and remove the cause of the error.

INFO: ISJEE_SHOALX0007: Sending PlannedShutdownSignals to registered Actions for shutdownType {0} Member: {1}...

Variable Information

{0}: Internal information
{1}: Server instance name

Explanation

A signal was sent notifying stoppage of the group management service.

System Action

Processing is continued.

INFO: ISJEE_SHOALX0008: Leaving GMS group {0} with shutdown type set to GroupShutdown

Variable Information

{0}: Cluster name

Explanation

The group management service is being left.

System Action

Processing is continued.

INFO: ISJEE_SHOALX0009: Leaving GMS group {0} with shutdown type set to InstanceShutdown

Variable Information

{0}: Cluster name

Explanation

The group management service is being notified of server instance shutdown.

System Action

Processing is continued.

WARNING: ISJEE_SHOALX0012: IOException occurred while announcing cluster shutdown : {0}

Variable Information

{0}: Cluster name

Explanation

An error occurred during notification of group management service shutdown.

System Action

Processing is continued.

User Action

Refer to the detail information and remove the cause of the error.

INFO: ISJEE_SHOALX0014: Received Group Shutting down message from member : {0} of Group: {1}

Variable Information

{0}: Server instance name
{1}: Cluster name

Explanation

Notification of group management service stoppage was received.

System Action

Processing is continued.

INFO: ISJEE_SHOALX0015: Analyzing new membership snapshot received as part of event : {0} for Member: {1} of Group: {2}

Variable Information

{0}: Event information
{1}: Server instance name
{2}: Cluster name

Explanation

Notification of a group management service event was received. The following event information is output:

- ADD_EVENT

A server instance was added.

- CLUSTER_STOP_EVENT

The cluster was stopped.

- FAILURE_EVENT

The existence of the server instance was checked because notifications from the server instance had ceased, but there was no response. The server instance might have ended abnormally, or communications might have failed as a result of an increased network load or similar.

- IN_DOUBT_EVENT

Notifications from the server instance have ceased.

- JOINED_AND_READY_EVENT

The server instance was registered.

- MASTER_CHANGE_EVENT

A request to change the master was posted because an error occurred for the master server instance that manages the status.

- NO_LONGER_INDOUBT_EVENT

Notifications from the server instance have ceased.

- PEER_STOP_EVENT

The server instance was stopped normally.

System Action

Processing is continued.

INFO: ISJEE_SHOALX0016: Received PlannedShutdownEvent Announcement from Instance {0} with Shutdown type = {1} of Group: {2}

Variable Information

{0}: Server instance name
{1}: Internal information
{2}: Cluster name

Explanation

Notification of the group management service stoppage was received.

System Action

Processing is continued.

WARNING: ISJEE_SHOALX0017: The SystemAdvertisement did not contain the custom tag value : {0}

Variable Information

{0}: Detail information

Explanation

The group management service received an unexpected announcement.

System Action

Processing is continued.

User Action

Contact your service engineer.

INFO: ISJEE_SHOALX0018: The following member has failed: {0} of Group: {1}

Variable Information

{0}: Detail information

{1}: Cluster name

Explanation

A group management service failure signal was received.

System Action

Processing is continued.

13.50.2 SHOALX1000 to SHOALX1099

INFO: ISJEE_SHOALX1001: GMS View Change Received for group {0} : Members in view for (before change analysis) are {1}

Variable Information

{0}: Cluster name

{1}: Detail information

Explanation

A request to change the group management service status was received. The information below is displayed in the detail information. Check that information is displayed for all the server instances in the IJServer cluster.

{0}: MemberId: {1}, MemberType: {2}, Address: {3}

The following are displayed for the above placeholders:

{0}: Number

{1}: Server instance name

{2}: CORE or SPECTATOR

SPECTATOR expresses Interstage Java EE DAS service information and shows that only status monitoring is being performed.

{3}: Internal address information

System Action

Processing is continued.

INFO: ISJEE_SHOALX1002: Adding Joined And Ready member : {0}

Variable Information

{0}: Server instance name

Explanation

A server instance was added to a group management service member.

System Action

Processing is continued.

INFO: ISJEE_SHOALX1003: normal termination of ViewWindow thread

Explanation

The group management service monitoring thread ended normally.

System Action

Processing is continued.

WARNING: ISJEE_SHOALX1004: unexpected exception terminated ViewWindow thread

Explanation

The group management service thread ended due to an unexpected error.

System Action

Processing is continued.

User Action

Check whether a memory shortage occurred.

WARNING: ISJEE_SHOALX1005: SystemAdvertisement did not contain one of the specified tag values: {0}

Variable Information

{0}: Error information

Explanation

The group management service notification information does not include some required information.

System Action

Processing is continued.

User Action

Contact your technical staff.

WARNING: ISJEE_SHOALX1006: The SystemAdvertisement did not contain the {0} custom tag value:

Variable Information

{0}: Error information

Explanation

The group management service notification information does not include some required information.

System Action

Processing is continued.

User Action

Contact your technical staff.

13.50.3 SHOALX2000 to SHOALX2099

INFO: ISJEE_SHOALX2001: GMS:Reporting Joined and Ready state to group {0}

Variable Information

{0}: Cluster name

Explanation

Registration and start is notified to the group management service.

System Action

Processing is continued.

WARNING: ISJEE_SHOALX2010: Could not instantiate LWRMulticast : {0}

Variable Information

{0}: Error information

Explanation

Failed to initialize the group management service.

System Action

Processing is continued.

User Action

Check the following:

- Has network communication failed due to high load?
- Is there enough memory?
- Has an error occurred, as shown in the error information?

WARNING: ISJEE_SHOALX2011: HealthMonitor:Caught IOException : {0}

Variable Information

{0}: Error information

Explanation

An error was detected in processing for life-or-death monitoring of the group management service.

System Action

Processing is continued.

User Action

Check the following:

- Has network communication failed due to high load?
- Is there enough memory?
- Has an error occurred, as shown in the error information?

WARNING: ISJEE_SHOALX2012: HealthMonitor:Caught Unknown Exception : {0}

Variable Information

{0}: Error information

Explanation

An error was detected in processing for life-or-death monitoring of the group management service.

System Action

Processing is continued.

User Action

Check the following:

- Has network communication failed due to high load?
- Is there enough memory?
- Has an error occurred, as shown in the error information?

WARNING: ISJEE_SHOALX2013: unexpected IOException creating system advertisement

Explanation

An error was detected in processing for life-or-death monitoring of the group management service.

System Action

Processing is continued.

User Action

Check the following:

- Has network communication failed due to high load?
- Is there enough memory?

WARNING: ISJEE_SHOALX2014: ignoring memberstatequery. SysAdv is null

Explanation

A notice was received for life-or-death monitoring of the group management service, but it was a null notice so it was ignored.

System Action

Processing is continued.

User Action

- Has network communication failed due to high load?
- Is there enough memory?

WARNING: ISJEE_SHOALX2015: Could not send the message via LWRMulticast : {0}

Variable Information

{0}: Error information

Explanation

An error occurred in the notice for life-or-death monitoring of the group management service.

System Action

Processing is continued.

User Action

Check the following:

- Has network communication failed due to high load?
- Is there enough memory?
- Has an error occurred, as shown in the error information?

WARNING: ISJEE_SHOALX2016: ignoring memberStateResponse, received a memberstateresponse with no sender advertisement

Explanation

A notice was received for life-or-death monitoring of the group management service, but it was a null notice so it was ignored.

System Action

Processing is continued.

User Action

- Has network communication failed due to high load?
- Is there enough memory?

WARNING: ISJEE_SHOALX2017: failed to send heartbeatmessage with state={0}

Variable Information

{0}: Internal information

Explanation

Failed to send the group management service heartbeat message.

System Action

Processing is continued.

User Action

- Has network communication failed due to high load?
- Is there enough memory?

WARNING: ISJEE_SHOALX2018: Uncaught Throwable in healthMonitorThread {0}

Variable Information

{0}: Internal information

Explanation

An error occurred in the heartbeat management thread of the group management service.

System Action

Processing is continued.

User Action

Check the following:

- Is there enough memory?

WARNING: ISJEE_SHOALX2019: Failed to send message

Explanation

Failed to send the group management service heartbeat message.

System Action

Processing is continued.

User Action

Check the following:

- Has network communication failed due to high load?
- Is there enough memory?

Also, refer to the error information output before and after this one, and check whether action can be taken.

WARNING: ISJEE_SHOALX2020: Failed to create health monitoring pipe advertisement :{0}

Variable Information

{0}: Error information

Explanation

Failed to create the group management service heartbeat diagnosis.

System Action

Processing is continued.

User Action

Check the following:

- Is there enough memory?

Also, refer to the error information output before and after this one, and check whether action can be taken.

WARNING: ISJEE_SHOALX2021: Could not send the LWR Multicast message to get the member state of {0}

Variable Information

{0}: Internal information

Explanation

Failed to send the group management service heartbeat message.

System Action

Processing is continued.

User Action

Check the following:

- Has network communication failed due to high load?
- Is there enough memory?

Also, refer to the error information output before and after this one, and check whether action can be taken.

WARNING: ISJEE_SHOALX2022: failed to send LWRMulticast message, send returned false

Explanation

Failed to send the group management service heartbeat message.

System Action

Processing is continued.

User Action

Check the following:

- Has network communication failed due to high load?
- Is there enough memory?

Also, refer to the error information output before and after this one, and check whether action can be taken.

WARNING: ISJEE_SHOALX2023: wait() was interrupted : {0}

Variable Information

{0}: Error information

Explanation

An error occurred in the heartbeat management thread of the group management service.

System Action

Processing is continued.

User Action

Check the following:

- Has network communication failed due to high load?
- Is there enough memory?

Also, refer to the error information output before and after this one, and check whether action can be taken.

INFO: ISJEE_SHOALX2024: Calling reportMyState() with READY...

Explanation

The fact that the group management service is ready was notified.

WARNING: ISJEE_SHOALX2025: {0} peer: {1} does not exist in local ClusterView

Explanation

A group management service notice was received, but the notified information does not exist in this server instance.

System Action

Processing is continued.

User Action

Check the following:

- Has network communication failed due to high load?
- Is there enough memory?

Also, refer to the error information output before and after this one, and check whether action can be taken.

13.51 Messages that Contain "SMGT" in the Message ID

13.51.1 SMGT0000 to SMGT0099

INFO: ISJEE_SMGT0007: Self Management Rules service is enabled

Variable Information

{0}: Application name

Explanation

The self management rules are enabled.

This is an information message indicating that the container start process was executed correctly.

13.52 Messages that Contain "SYNC" in the Message ID

13.52.1 SYNC000 to SYNC099

SYNC001: Unable to communicate with Domain Administration Server. Skipping synchronization.

Explanation

Connection to the Interstage Java EE DAS service failed.

System Action

Repository synchronization is omitted and processing is continued.

User Action

The definition information might not be in its most recent state because repository synchronization was not performed.

- Check whether the Interstage Java EE DAS service is running, as it might have stopped.
- If this message is output when the Interstage Java EE Node Agent service starts up, then the RMI registry connection port number used by the Interstage Java EE DAS service JMX connector might already be in use. Refer to "[6.13 Port Tuning](#)" and "[7.8.5 Managed Service Definition Items](#)", and set port tuning.

Remove the cause of the error, perform the operations below if necessary, then perform repository synchronization.

- If this message is output when the Interstage Java EE Node Agent service starts up, then restart it.
- If this message is output when the IIServer cluster or server instance starts up, then restart it.

If this message is output when an application is deployed, then redeploy it.

SYNC002: Unable to connect to admin server: {0}.

Variable Information

{0}: Detail information

Explanation

Connection to the Interstage Java EE DAS service failed.

System Action

Processing is continued.

User Action

The definition information might not be in its most recent state because repository synchronization was not performed.

Check whether the Interstage JavaEE DAS service is started, and then restart the Interstage Java EE Node Agent service and synchronize the repository.

SYNC005: Received synchronization request at time [{0}] from [{1}].

Variable Information

{0}: Time when request was received
{1}: Name of request source

Explanation

A repository synchronization request was received.

SYNC010: Synchronization completed in {0} seconds.

Variable Information

{0}: Processing time

Explanation

Definition information synchronization processing is completed.

SYNC021: Could not create the local file {0}.

Variable Information

{0}: File name

Explanation

Failed to create the file.

System Action

Synchronization for file {0} is not performed, and processing continues.

User Action

Make sure that the path of file {0} is valid.

SYNC022: During the file transfer of {0}, there was a failure caused by IOException.

Variable Information

{0}: Path of the synchronization target file

Explanation

The path of file {0} is invalid.

System Action

Synchronization for file {0} is not performed, and processing continues.

User Action

Make sure that the path of file {0} is valid.

SYNC023: {0} is an absolute path, it is not allowed.

Variable Information

{0}: Path of the synchronization target file

Explanation

The path of file {0} is invalid.

System Action

Synchronization for file {0} is not performed, and processing continues.

User Action

Make sure that the path of file {0} is valid and that there are access privileges for the directory on the path.

SYNC029: There was an exception during synchronization. Please try again and a full synchronization will be initiated. All necessary configuration for the server instance (server1 in example) will be downloaded from Domain Administration Server by synchronization.

Explanation

Repository synchronization processing failed.

System Action

Processing is continued.

User Action

Check whether other errors have occurred, remove the cause of the errors, and perform repository synchronization processing again.

If required, execute the following operations and then perform repository synchronization processing:

- Restart the IJServer cluster and server instance.
- Execute the HotDeploy application.
- Restart the Interstage Java EE Node Agent service.

If IJServer cluster resources were imported, check whether the correct host name was specified in the -h option of the ijrestore command.

Windows32/64

If java.io.FileNotFoundException is output after this message, the file attributes might have been changed when backup and restore were performed.

Refer to the notes in "Targeted resources for IJServer cluster backup and restore" and take one of the following actions:

- If hidden file attributes have been added to the backed up resources, change them to disabled and execute restore again.
- Perform backup and restore again.

SYNC047: Could not complete synchronization transaction for: {0}.

Variable Information

{0}: Name of repository for which synchronization processing failed.

Explanation

Repository synchronization processing failed.

System Action

Processing is continued.

User Action

Possible causes are as follows:

- The Interstage Java EE DAS service might not be started.
- There might be insufficient free disk space.
- The maximum path length supported by the OS might have been exceeded.

Check the message output after this message and take any required action.

SYNC052: Can not determine Applications configured for server: {0}

Variable Information

{0}: Server instance name

Explanation

Read processing failed for the Interstage Java EE DAS service definition file.

System Action

Processing is continued.

User Action

The Interstage Java EE DAS service definition file might be corrupted. If the definition file is corrupted it will be recovered when the following services are restarted:

- Interstage Java EE DAS service
- Interstage Java EE Node Agent service

Restart the above services and then execute processing again.

It is recommended that you check the operation content because some information from operations performed before the service restart might have been lost.

SYNC055: Unexpected error while removing file: {0}

Variable Information

{0}: File name

Explanation

An error occurred during repository synchronization.

System Action

Processing is continued.

User Action

Unnecessary resources might still exist. Any remaining resources will be deleted on the next repository synchronization, so restart the IJServer cluster or server instance where necessary.

INFO: ISJEE_SYNC062: Synchronization for {0} is complete. Total time spent {1} milli second(s).

Variable Information

{0}: Application name

{1}: Processing time

Explanation

Synchronization processing is completed for the application resource output in the variable information.

SYNC073: Repository cleaning cycle took {0} seconds to complete.

Variable Information

{0}: Processing time

Explanation

The definition information cache was cleaned.

SYNC075: Initial attempt to synchronize failed. Re-trying.

Explanation

Repository synchronization processing failed. Synchronization processing is being performed again.

System Action

Processing is continued.

User Action

Check whether an error occurs after this message is output. If no error occurs, no action is required.

SYNC076: Error while retrieving file from central repository: {0}

Variable Information

{0}: Repository name

Explanation

An error occurred during connection to the Interstage Java EE DAS service - an authentication information inconsistency or network environment error might have occurred.

System Action

Processing is interrupted.

User Action

If administrator settings were changed while the Interstage Java EE Node Agent service was running, then an inconsistency might have occurred in the Interstage Java EE DAS service and Interstage Java EE Node Agent service authentication information, causing this message to be output.

In this case, restart the Interstage Java EE Node Agent service and update the authentication information.

If the above does not apply, then check whether there is a problem in the network environment.

SYNC078: Key file location can not be determined. Check config/security-service/security-service/auth-realm element exists. Check if it contains file property.

Explanation

Failed to reference the key file. Make sure that 'file' is contained in the realm setting and in the additional property for the realm.

System Action

Processing is interrupted.

User Action

Make sure that 'file' was defined in the additional property for the realm. For details on the file realm settings, refer to "[5.3.6 File Realm Settings](#)".

13.53 Messages that Contain "SYSSVC" in the Message ID

13.53.1 SYSSVC1000 to SYSSVC1099

ERROR: ISJEE_SYSSVC1001: Invalid application name: {0}

Variable Information

{0}: Application name

Explanation

The specified application name is incorrect.

System Action

Processing is interrupted.

User Action

Only EJB applications, client applications, or EAR that includes either can be specified. Specify the correct application name and then execute the processing again.

SYSSVC1002: Invalid application or module name: {0}

Variable Information

{0}: Application name

Explanation

The specified application or submodule does not exist.

System Action

Processing is interrupted.

User Action

Specify an existing application name or submodule name, and then execute processing again.

13.54 Messages that Contain "TARGET" in the Message ID

13.54.1 TARGET1000 to TARGET1099

ERROR: ISJEE_TARGET1001: Cannot determine type for target : {0}

Variable Information

{0}: Target name of the operation target

Explanation

The target name of the operation target is incorrect.

System Action

Processing is interrupted.

User Action

Specify the correct target name for the operation target and then execute processing again.

This message might also be output when the corresponding definition was deleted by another user. If this message is output despite a correct target name being specified, then check whether another user performed the operation at the same time.

ERROR: ISJEE_TARGET1002: The target {0} of type {1} is invalid. Valid target types are {2}.

Variable Information

{0}: Target name of the operation target

{1}: Target type

{2}: Valid target types

Explanation

The target type of the operation target is incorrect.

System Action

Processing is interrupted.

User Action

Specify the correct target name for the operation target and then execute processing again.

13.55 Messages that Contain "TLS" in the Message ID

13.55.1 TLS1000 onwards

ERROR: ISJEE_TLS1001: Unknown Version. {0}

Variable Information

{0}: Detail information

Explanation

There is an error in the operating environment.

System Action

Processing continues. Note that the product version information might not be displayed correctly in some commands or windows.

User Action

If detail information displays the file or directory name, then make sure that there is access privilege to it and restart the Interstage Java EE DAS service. Otherwise, or if the problem is not solved by the above action, use the iscollectinfo command to collect data and then contact your service engineer.

ERROR: ISJEE_TLS1002: Unknown Edition. {0}

Variable Information

{0}: Detail information

Explanation

There is an error in the operating environment.

System Action

Processing is continued, but the product name may not be displayed correctly in some commands or windows.

User Action

If a file or directory is displayed in the message, ensure that the user has access permission to it, then restart the Interstage Java EE DAS service. Otherwise, or if the problem is not solved by the above action, use the iscollectinfo command to collect data and then contact your service engineer .

13.56 Messages that Contain "UTIL60" in the Message ID

13.56.1 UTIL6000 to UTIL6099

ERROR: ISJEE_UTIL6009:Unexpected Exception in createORB.

Explanation

ORB generation failed.

System Action

An exception is posted to the application.

If an IJServer cluster has been used, the error will be notified when it starts up.

User Action

Take the following actions:

- It may not have been possible to use the IP address or port number specified for the IIOP listener.
Check the IIOP listener settings, and whether they are being used by another application. If the port is being used, tune the port number. Additionally, check whether the IIOP listener (orb-listener-1) is enabled.
- Ensure that the properties below have a valid value:
 - com.sun.corba.ee.transport.ORBTCPCConnectTimeouts
 - com.sun.corba.ee.transport.ORBWaitForResponseTimeout
 - com.sun.corba.ee.transport.ORBTCPTimeouts
 - com.sun.corba.ee.transport.ORBClientIdleConnectTimeouts
- Ensure that the properties below (which are related to the IIOP access log) have a valid value:
 - ISJEELogIiopAccessMode
 - ISJEELogIiopAccessRotationsize
 - ISJEELogIiopAccessRotationcount
- If none of the above applies, identify the cause from the exception information that is output for 'Caused by:' after the stack trace, then take action.

WARNING: ISJEE_UTIL6053: The Connector module {0} has been removed. Please redeploy all applications that are using this connector modules resources

Variable Information

{0}: Application name

Explanation

The connector module was undeployed. Re-deploy the applications that use the resources of this connector module.

System Action

Processing is continued.

User Action

Re-deploy the applications that use the resources of the connector module shown in the variable information.

13.57 Messages that Contain "WEB" in the Message ID

13.57.1 WEB0100 to WEB0199

WEB0103: This web container has not yet been started

Explanation

This Web container is not started yet.

This message might be output during stop processing if start processing has failed for the IJServer cluster.

System Action

Refer to the message and exception information that was also output.

User Action

Refer to the message and exception information that was also output.

WEB0105: An error occurred while starting the web container

Explanation

An error occurred during Web container startup.

System Action

Refer to the message and exception information that was also output.

User Action

Refer to the message and exception information that was also output.

WEB0106: An error occurred while stopping the web container

Explanation

An error occurred while stopping the Web container.

System Action

Refer to the message and exception information that was also output.

User Action

Refer to the message and exception information that was also output.

WARNING: ISJEE_WEB0110: Ignoring invalid property [{0}] = [{1}]

Variable Information

{0}: Property name
{1}: Specified value

Explanation

A property defined in sun-web.xml is incorrect.

System Action

Processing is continued.

User Action

Refer to "Interstage Web application deployment descriptor (sun-web.xml)" and specify a valid property and value.

WARNING: ISJEE_WEB0113: Virtual server [{0}] already has a web module loaded at [{1}]; therefore web module [{2}] cannot be loaded at this context path on this virtual server.

Variable Information

{0}: Virtual server name
{1}: Context root name
{2}: Web application name

Explanation

Web application startup failed.

System Action

The Web application cannot be executed.

User Action

Refer to the message and exception information that was also output and fix the error.

If the above actions do not solve the problem, execute the following:

- Restart the IIServer cluster.
- Restart the Interstage Java EE DAS service.

This warning can be ignored if it is output when the enable subcommand of the asadmin command is used

INFO: ISJEE_WEB0114: SSO is disabled in virtual server [{0}]

Variable Information

{0}: Virtual server name

Explanation

The virtual server single sign-on function is disabled.

ERROR: ISJEE_WEB0123: WebModule [{0}] failed to deploy and has been disabled

Variable Information

{0}: Web application name

Explanation

Web application deployment failed. This Web application cannot be executed.

System Action

Deployment processing is continued.

User Action

Refer to the message and exception information that was also output and fix the error.

Then, re-deploy the Web application.

WARNING: ISJEE_WEB0133: Failed to read attribute {0} from MBean {1}

Variable Information

{0}: Performance information name

{1}: MBean information

Explanation

The performance information targeted for monitoring by monitor logging could not be accessed.

System Action

Processing is continued without fetching the most recent value for the performance information name.

User Action

The HTTP listener might be disabled. Revise the HTTP listener settings.

Refer to the message and exception information that was also output and fix the error.

No action is required if this message was output due to stop processing for the IJServer cluster taking a long time.

WARNING: ISJEE_WEB0170: Invalid value [{1}] specified in sun-web.xml:[{0}] for web-module [{2}]

Variable Information

{0}: Definition name

{1}: Definition value

{2}: Web application name

Explanation

The value for the definition name entered in the Web application sun-web.xml is not a specifiable definition value.

System Action

The default value for the definition name is used and processing is continued.

User Action

Refer to "Interstage deployment descriptor" and change the value to a definable value.

WARNING: ISJEE_WEB0171: Internal error.: DETAILS={0}

Variable Information

{0}: Detail information

Explanation

An internal conflict occurred.

System Action

Processing is continued.

User Action

Contact your technical staff.

13.57.2 WEB0200 to WEB0299

ERROR: ISJEE_WEB0200: Configuration error in web module [{0}] (while initializing virtual server [{1}])

Variable Information

{0}: Web application name

{1}: Virtual server name

Explanation

The Web application failed to load.

System Action

Application loading is interrupted and IIServer cluster start processing is continued.

User Action

The application path is output in the stack trace output before and after this message.

- Check whether the resource exists in the application path and, if not, re-deploy the application.
- Check the access permission for the application path and, if inappropriate, set the appropriate access permission.

ERROR: ISJEE_WEB0207: Error starting web context {0} on virtual server {1}

Variable Information

{0}: Web application name

{1}: Virtual server name

Explanation

Web application activation processing failed.

System Action

Application loading is interrupted and IIServer cluster start processing is continued.

User Action

Refer to the message and exception information that was also output and fix the error.

Then, restart the IIServer cluster.

13.57.3 WEB0300 to WEB0399

INFO: ISJEE_WEB0302: Starting Interstage Application Server/Web Container.

Explanation

The Web container is starting.

INFO: ISJEE_WEB0303: Stopping Interstage Application Server/Web Container.

Explanation

The Web container is stopping.

WARNING: ISJEE_WEB0304: Unsupported http-service property ({0}) is being ignored

Variable Information

{0}: Property

Explanation

The unsupported HTTP service property is ignored.

System Action

Processing is continued.

User Action

Specify a supported property.

WARNING: ISJEE_WEB0308: All SSL cipher suites disabled for http-listener {0}, using SSL implementation specific defaults

Variable Information

{0}: HTTP listener name

Explanation

All encryption ciphers set for the HTTP listener ({0}) were disabled. From now on, the default encryption cipher will be used.

System Action

Processing is continued.

User Action

Follow the action advised in the other messages and the exception information output to remove the cause of the error.

WARNING: ISJEE_WEB0309: Unrecognized cipher: {0}

Variable Information

{0}: Encryption cipher

Explanation

The specified encryption cipher ({0}) is not recognized.

System Action

Processing is continued.

User Action

Perform the following checks:

- Check that the specified encryption cipher is valid.

- Refer to ["5.2.3 SSL"](#), and check that the SSL environment build procedure is valid.
- Follow the action advised in the other messages and the exception information output to remove the cause of the error.

After the above checks and corrections, restart the Interstage Java EE DAS service and the IJServer cluster together with the settings targets.

WARNING: ISJEE_WEB0318b: Invalid max-pending-count attribute value: {0}. Using default {1}.

Variable Information

{0}: Definition value
{1}: Default value

Explanation

The definition value for the maximum pending count is incorrect.

System Action

Processing is continued using the default value.

User Action

Specify a maximum pending count within the range 1 to 2147483647.

WARNING: ISJEE_WEB0324: Missing end delimiter in access log pattern: {0}:

Variable Information

{0}: Definition value

Explanation

The item name specified in the HTTP access log format pattern is not enclosed by %.

System Action

The set value is not enabled. Processing is continued.

User Action

Review the value set in the HTTP access log pattern (for details on the HTTP access log, refer to ["4.22 Java EE Application Logs"](#) > ["4.22.3 HTTP Access Log"](#)).

WARNING: ISJEE_WEB0325: Invalid component: {0} in access log pattern: {1}:

Variable Information

{0}: Definition value
{1}: Definition value

Explanation

An unsupported value was set in the in the HTTP access log format pattern.

System Action

Processing is continued.

User Action

Review the value set in the HTTP access log pattern (for details on the HTTP access log, refer to ["4.22 Java EE Application Logs"](#) > ["4.22.3 HTTP Access Log"](#)).

WARNING: WEB0327: Unsupported http-listener property {0} is being ignored

Variable Information

{0}: Property name

Explanation

The specified HTTP listener value {0} is not supported and is being ignored.

System Action

The set value is not enabled. Processing is continued.

User Action

- Refer to "Definition item list" for the values for each property.
- Revise the value set for the HTTP listener additional property.

WARNING: ISJEE_WEB0341a: Invalid queue-size-in-bytes attribute value: ({0}). Using default {1}.

Variable Information

{0}: Definition value
{1}: Default value

Explanation

The queue size definition value is incorrect.

System Action

Processing is continued using the default value.

User Action

Specify a queue size within the range 1 to 2147483647.

WEB0345: Access log valve cannot be stopped because it has not been started

Explanation

The definition set in the HTTP access log may be invalid.

System Action

Processing is interrupted.

User Action

Review the value set in the HTTP access log (for details on the HTTP access log, refer to "[4.22 Java EE Application Logs](#)" > "[4.22.3 HTTP Access Log](#)").

WARNING: ISJEE_WEB0348: Illegal access log pattern [{0}], is not a valid nickname and does not contain any % :

Variable Information

{0}: Definition value

Explanation

An unsupported value was set in the in the HTTP access log format pattern.

System Action

Processing is continued.

User Action

Review the value set in the HTTP access log pattern (for details on the HTTP access log, refer to "[4.22 Java EE Application Logs](#)" > "[4.22.3 HTTP Access Log](#)").

WARNING: ISJEE_WEB0351: Failed in flushBuffer of the response in Access log valve: [{0}]

Variable Information

{0}: Detail information

Explanation

An exception occurred in registration processing of the response information during HTTP access log output.

System Action

Processing is continued.

User Action

Refer to the message and remove the cause of the error.

13.57.4 WEB0600 to WEB0699

ERROR: ISJEE_WEB0600: WebModule [{0}] failed to deploy and has been disabled:[{1}]

Variable Information

{0}: Web application name

{1}: Exception information

Explanation

The web module failed to deploy and has been disabled.

System Action

Processing is continued.

User Action

Refer to the other messages and exception information that were also output, remove the cause of the error, and then redeploy the web application.

ERROR: ISJEE_WEB0605: No Realm has been configured to authenticate against

Explanation

No Realm has been configured to authenticate against.

System Action

Web application initialization is interrupted and processing is continued.

User Action

If the Java EE security function was used, check that the web.xml and sun-web.xml settings are valid.

Follow the action advised in the other messages and the exception information output to remove the cause of the error.

ERROR: ISJEE_WEB0607: Cannot configure an authenticator for method {0}

Variable Information

{0}: Method name

Explanation

The method authenticator cannot be set.

System Action

Web application initialization is interrupted and processing is continued.

User Action

An invalid value might be defined in the web.xml auth-method tag.

Check the value in the web.xml auth-method tag.

Refer to "login-config tag" for the values that can be specified in the auth-method tag.

ERROR: ISJEE_WEB0610: WebModule [{0}] failed to deploy and has been disabled

Variable Information

{0}: Web application name

Explanation

The Web module failed to be deployed and is disabled.

System Action

Web application initialization is interrupted and processing is continued.

User Action

Refer to the message and exception information that was also output and fix the error.

Then, restart the IJServer cluster.

13.57.5 WEB0700 to WEB0799

ERROR: ISJEE_WEB0701: Error initializing endpoint

Explanation

HTTP listener initialization failed.

System Action

HTTP listener startup is interrupted.

User Action

Refer to the message and exception information that was also output and fix the error.

If java.net.BindException is output, possible causes are as follows:

- Another system is using the same port number.
Revise the HTTP listener port number.
- The port number (ephemeral port) of the area dynamically allocated by the system is being used.
Revise the HTTP listener port number.
- An IJServer cluster definition item was changed during IJServer cluster startup. IJServer cluster restart is required. Restart the IJServer cluster.
- Content except "\${HTTP_LISTENER_PORT}" was set for the HTTP service listener port, and multiple instances were created in the same IJServer cluster.

Check whether the listener ports of each instance are duplicated (for details, refer to "[7.8 Operating Environment-related Definition Items](#)" > "[7.8.3 HTTP Service Definition Items](#)").

INFO: ISJEE_WEB0712: Starting Interstage Application Server/Web Container HTTP/1.1 on {0}

Variable Information

{0}: Port number

Explanation

The Web container HTTP listener is starting.

INFO: ISJEE_WEB0713: Stopping Interstage Application Server/Web Container HTTP/1.1 on {0}

Variable Information

{0}: Port number

Explanation

The Web container HTTP listener is stopping.

ERROR: ISJEE_WEB0756: Caught exception during HTTP processing.

Explanation

An exception occurred during request processing.

System Action

Request processing is not performed.

User Action

Refer to the message and exception information that was also output and fix the error.

ERROR: ISJEE_WEB0765: http-listener {0} shutdown due to exception: {1}

Variable Information

{0} HTTP listener information

{1} Exception information

Explanation

An exception occurred during HTTP listener processing. The HTTP listener is stopped.

System Action

Request reception is stopped.

User Action

Refer to the message and exception information that was also output and fix the error.

WARNING: ISJEE_WEB0769: Exception when registering http-listener [{0}] mbeans

Variable Information

{0}: HTTP listener port number

Explanation

An exception occurred during HTTP listener registration processing.

System Action

Processing is continued.

HTTP listener referencing and operations might not be possible using the management console or commands.

User Action

Refer to the exception information output afterwards.

WARNING: ISJEE_WEB0770: Exception when deregistering http-listener [{0}] mbeans

Variable Information

{0}: HTTP listener port number

Explanation

An exception occurred during HTTP listener de-registration processing.

System Action

Processing is continued.

HTTP listener referencing and operations might not be possible using the management console or commands.

User Action

Refer to the exception information output afterwards.

ERROR: ISJEE_WEB0777: Unblocking keep-alive exception

Explanation

An exception occurred during request processing.

System Action

Processing is interrupted.

User Action

Refer to the exception information output afterwards.

WARNING: ISJEE_WEB0791: Set value [{0}] of HTTP listener's option [requestCheck] is not suitable for the operational environment.

Variable Information

{0}: Property value

Explanation

The value of requestCheck is not suitable for the operational environment.

System Action

The "400 Bad Request" status code is returned.

User Action

Ensure that the value of requestCheck is suitable for the operational environment (for details, refer to "[7.8 Operating Environment-related Definition Items](#)" > "[7.8.3 HTTP Service Definition Items](#)").

13.57.6 WEB1500 to WEB1599

ERROR: ISJEE_WEB1500: ReadTask received exception in request process

Explanation

An exception occurred during request processing.

System Action

Processing is continued.

User Action

Refer to the exception information output afterwards.

WARNING: WEB1501: setSoLinger exception

Explanation

An exception occurred while a socket option was being set.

System Action

Processing is continued.

User Action

Refer to the message and exception information that was also output and fix the error.

WARNING: WEB1502: setTcpNoDelay exception

Explanation

An exception occurred while a socket option was being set.

System Action

Processing is continued.

User Action

Refer to the message and exception information that was also output and fix the error.

WARNING: WEB1503: setReuseAddress exception

Explanation

An exception occurred while a socket option was being set.

System Action

Processing is continued.

User Action

Refer to the message and exception information that was also output and fix the error.

WARNING: WEB1504: setOOBInline exception

Explanation

An exception occurred while a socket option was being set.

System Action

Processing is continued.

User Action

Refer to the message and exception information that was also output and fix the error.

WARNING: ISJEE_WEB1505: Maximum connections queued reached (queue-size-in-bytes) {0}. Dropping requests until queued connections have been freed up.

Variable Information

{0}: Queue size

Explanation

The number of requests waiting for processing exceeds the queue size.

System Action

HTTP request processing fails.

User Action

Increase the queue size. Alternatively, this problem can be addressed by increasing the number of simultaneous processes. Refer to "Web container tuning" for the setting method.

WEB1510: IN WebContainer>>moduleUndeployed: "{0}"about to close all connections

Variable Information

{0}: Deployment module name

Explanation

The deployment module connection is closing.

System Action

Processing is continued.

User Action

Restart the IJServer cluster.

If this does not solve the problem, create the IJServer cluster correctly.

ERROR: WEB1511: {0}:{1}

Variable Information

{0}: Exception information

{1}: Class name

Explanation

Listener instance generation failed.

System Action

Processing is continued.

User Action

Refer to the message and exception information that was also output and fix the error.

If this does not solve the problem, install the "Interstage Java EE" package correctly.

ERROR: WEB1512: Unable to load session uuid generator {0}

Variable Information

{0}: Session ID generation class name

Explanation

The session ID generation class name failed to load.

System Action

The session ID generation class cannot be used.

User Action

Create the IJServer cluster again.

If this does not solve the problem, install the "Interstage Java EE" package correctly.

ERROR: WEB1513: Error resetting WebModuleStats

Explanation

The monitor logging information could not be reset.

System Action

Processing is continued.

User Action

Restart the IJServer cluster.

WARNING: WEB1514: virtual-server {0} has an invalid docroot: {1}

Variable Information

{0}: Virtual server name

{1}: Document root directory

Explanation

The document root directory is invalid.

System Action

Processing is interrupted.

User Action

- Check whether the document root directory output in variable information {1} exists.
- Assign read permission to the document root directory shown in variable information {1}.
- Create the IJServer cluster again.

If this does not solve the problem, install the "Interstage Java EE" package correctly.

WARNING: WEB1515: Unable to find HttpServiceBean in config

Explanation

The HttpServiceBean could not be found from the definition file.

System Action

Monitor logging might not operate correctly.

User Action

- Correct the monitor logging environment.
- Create the IJServer cluster again.

WARNING: WEB1516: Invalid virtual-server: {0}

Variable Information

{0}: Virtual server name

{1}: Document root directory

Explanation

The virtual server name is invalid.

System Action

The virtual server is not enabled.

User Action

- Correct the virtual server environment.
- Create the IJServer cluster again.

WARNING: WEB1517: Unable to register PWCVirtualServerStats for {0}**Variable Information**

{0}: Virtual server name
{1}: Document root directory

Explanation

The virtual server name specified at {0} cannot be registered.

System Action

The virtual server is not enabled.

User Action

- Correct the virtual server environment.
- Create the IJServer cluster again.

WARNING: WEB1518: Error during destruction of virtual server {0}**Variable Information**

{0}: Virtual server name

Explanation

Deletion failed for the virtual server shown at {0}.

System Action

The virtual server cannot be deleted.

User Action

- Correct the virtual server environment.
- Create the IJServer cluster again.

WARNING: WEB1519: Invalid request-processing attribute**Explanation**

During Web container start processing, analysis of the values set for each of the request-processing items failed.

System Action

Processing is continued.

User Action

- Revise the values set for request-processing.
- Refer to the message and exception information that was also output and fix the error.

WARNING: WEB1521: Error in creating web modules manager: {0}**Variable Information**

{0}: Exception information

Explanation

Web module manager startup failed.

System Action

Processing is continued.

User Action

Refer to the message and exception information that was also output and fix the error.

WARNING: WEB1522: [WebContainer] Context {0} threw exception in destroy()

Variable Information

{0}: Context root

Explanation

An exception occurred during application stop processing.

System Action

Processing is continued.

User Action

Refer to the message and exception information that was also output and fix the error.

ERROR: ISJEE_WEB1523: [WebContainer] Undeployment failed for context {0}

Variable Information

{0}: Context root

Explanation

Web application undeployment failed.

System Action

Undeployment is stopped.

User Action

Refer to the message and exception information that was also output and fix the error.

If the above actions do not solve the problem, execute the following:

- Restart the IJServer cluster.
 - Restart the Interstage Java EE DAS service.
-

WARNING: WEB1524: [WebContainer] moduleDisabled fail for context {0}

Variable Information

{0}: Context root

Explanation

The application status change (disable) failed.

System Action

Processing is continued without changing the application status.

User Action

- Refer to the message and exception information that was also output and fix the error.
 - Restart the IJServer cluster.
-

WARNING: WEB1525: Exception during registration of servletstats

Explanation

An exception occurred during a monitor logging operation.

System Action

Monitor logging might not operate correctly.

User Action

- Check for problems in the output log file.
- Correct the monitor logging environment.

If the above actions do not solve the problem, create the IJServer cluster again.

WARNING: WEB1526: Exception during unregistration of servletstats

Explanation

An exception occurred during a monitor logging operation.

System Action

Monitor logging might not operate correctly.

User Action

- Check for problems in the output log file.
- Correct the monitor logging environment.

If the above actions do not solve the problem, create the IJServer cluster again.

WARNING: WEB1527: Fail to register WebModuleStats for {0} deployed on {1}

Variable Information

{0}: Web module name
{1}: Virtual server name

Explanation

An exception occurred during a monitor logging operation.

System Action

Monitor logging might not operate correctly.

User Action

- Check for problems in the output log file.
- Correct the monitor logging environment.

If the above actions do not solve the problem, create the IJServer cluster again.

WARNING: WEB1528: Fail to unregister WebModuleStats for {0} deployed on {1}

Variable Information

{0}: Web module name
{1}: Virtual server name

Explanation

An exception occurred during a monitor logging operation.

System Action

Monitor logging might not operate correctly.

User Action

- Check for problems in the output log file.

- Correct the monitor logging environment.

If the above actions do not solve the problem, create the IIServer cluster again.

WARNING: WEB1532: Unable to set logger on {0}.

Variable Information

{0}: Protocol handler name

Explanation

Setting of the log output handler failed.

System Action

Log output might not operate correctly.

User Action

Refer to the message and exception information that was also output and fix the error.

13.57.7 WEB5000 to WEB5099

WEB5002: Exception in handleBeforeEvent.

Explanation

An exception occurred during Web application initialization.

System Action

If a Web application name is output before and after this message, activation of that Web application is interrupted.

User Action

Refer to the message and exception information that was also output and fix the error.

WEB5003: Exception in handleAfterEvent.

Explanation

An exception occurred during Web application initialization.

System Action

If the name of the Web application was output before and after, activation of the Web application is cancelled.

User Action

Follow the action advised in the exception information and any other messages to remove the cause of the error.

13.58 Messages that Contain "WEBSEC" in the Message ID

13.58.1 WEBSEC00000 to WEBSEC00099

WARNING: ISJEE_WEBSEC00001: Web login failed: {0}

Variable Information

{0}: Detail information

Explanation

Web application or Interstage Java EE DAS service authentication failed.

System Action

Processing is interrupted.

User Action

Refer to the detail information {0} and remove the cause of the error.

Possible causes are as follows:

- The URL of the directory service to be connected to is incorrect.
Check whether the URL of the directory service to be connected to is correct.
Refer to the Interstage Java EE Admin Console help for the setting method.
- The user does not exist.
Check whether the user exists.
- The password is incorrect.
Check whether the password is correct.

If the problem is not resolved, also refer to "14.2.9 When a Message is Output Stating that Authentication has Failed".

WARNING: ISJEE_WEBSEC00002: No WebSecurityManager found for context {0}

Variable Information

{0}: Context(Web application name)

Explanation

The Web application security manager was not found.

System Action

Processing is continued. Authentication / permission fails.

User Action

Revise the security settings.

WARNING: ISJEE_WEBSEC00003: There are some problems in the request: {0}

Variable Information

{0}: Detail information

Explanation

A problem occurred while processing the request.

System Action

Processing is continued. Authentication / permission fails.

User Action

Refer to the detail information and remove the cause of the error.

13.59 Messages that Contain "WSCONTAINER" in the Message ID

13.59.1 WSCONTAINER0000 to WSCONTAINER0099

WSCONTAINER0005: Two web services are being deployed with the same endpoint URL {0}; The service that gets loaded last will always be the one that is active for this URL

Variable Information

{0}: web.xml url-pattern value, or endpoint URL path part

Explanation

Two Web services were registered with the same endpoint URL.

System Action

Processing is continued.

User Action

Change the value specified, such as the web.xml <url-pattern> value or the @javax.jws.WebService annotation, so that the URL is not duplicated.

WSCONTAINER0008: Client not authorized for invocation of {0}

Variable Information

{0}: Method name

Explanation

There are no privileges to execute the method {0} in the client.

System Action

Processing is interrupted.

User Action

Check the privileges for the method. For details, refer to "5.4 Web Service Security Settings".

WSCONTAINER0031: Service {0} seems to be a JAXRPC based web service but without the mandatory WSDL and Mapping file. Deployment cannot proceed

Variable Information

{0}: webservicex.xml <webservice-description-name> value

Explanation

Failed to deploy the Web service application. Possible causes are as follows:

- The webservicex.xml spec version is not correct.
- The Web service application annotation declaration (@WebService or @WebServiceProvider) was not performed.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Specify "1.2" (http://java.sun.com/xml/ns/javaee/javaee_web_services_1_2.xsd) for the webservicex.xml spec version.
- Declare the Web service application annotation (@javax.jws.WebService or @javax.xml.ws.WebServiceProvider).

13.59.2 WSCONTAINER2000 to WSCONTAINER2099

ERROR: ISJEE_WSCONTAINER2007: Cannot initialize endpoint {0} : display name is : {1} : error is : {2}

Variable Information

{0}: Value of <port-component-name> in webservices.xml
{1}: Endpoint display name
{2}: Detail information

Explanation

Failed to initialize the endpoint.

System Action

Processing is interrupted.

User Action

Follow the action advised in the message output at the same time as this one to remove the cause of the error and then execute again.

ERROR: ISJEE_WSCONTAINER2014: Unable to load handler class {0}

Variable Information

{0}: Handler class name

Explanation

The handler class {0} cannot be loaded.

System Action

Processing is interrupted.

User Action

Check whether the correct handler class name is specified in the deployment descriptor or the annotation. Also check whether the handler class exists.

WARNING: ISJEE_WSCONTAINER2028: Invalid request scheme for Endpoint {0} .Expected http . Received {1}

Variable Information

{0}: Endpoint name
{1}: Transport protocol of the received request

Explanation

The client transport protocol used for the EJB format endpoint {0} is not compatible with the endpoint request.

System Action

Processing is interrupted.

User Action

Set the Web service client to use SSL to access the service. If it is acceptable for the relevant Web service to be called using a protocol other than SSL, delete the sun-ejb-jar.xml transport-guarantee definition.

WARNING: ISJEE_WSCONTAINER2032: CLIENT CERT authentication error for {0}

Variable Information

{0}: Endpoint name

Explanation

An error occurred during client certificate authentication for the endpoint {0}.

System Action

Processing is continued.

User Action

If SSL client authentication is performed, take one of the following actions:

- Check whether the client sent a client certificate.
- Check whether the client sent a client certificate that could not be analyzed.
- Check the client certificate contents.
- Check whether the required certificate is registered in the certificate environment.
- Revise the HTTP request authentication information.

In other cases, no action is required.

WARNING: ISJEE_WSCONTAINER2034: Servlet web service endpoint '{0}' failure

Variable Information

{0}: Servlet name

Explanation

Environment generation for the Web service application failed. A possible cause is as follows:

- An internal conflict was detected between the contents of the webservices.xml definitions and the WSDL file definitions.

System Action

Processing is interrupted.

User Action

Refer to the exception information output after this message, remove the error from the webservices.xml or WSDL file, and then execute again.

WARNING: ISJEE_WSCONTAINER2047: ijwsgen failed - proceeding under the assumption that the user packaged all required objects properly

Explanation

Processing to generate Web service definition information failed. The content specified in the webservices.xml <port-component> tag included in the deployment file differs from the content of the deployment file.

System Action

The different deployment file content specified in the webservices.xml <port-component> tag is ignored and processing is continued.

User Action

Refer to the exception information output before and after this message. If required, remove the cause of the error, and then execute again.

INFO: ISJEE_WSCONTAINER2069: ijwsgen successful

Explanation

The Web service definition information was generated successfully.

13.59.3 WSCONTAINER2100 to WSCONTAINER2199

WSCONTAINER2101: Neither servlet-link nor ejb-link is specified for endpoint '{0}'

Variable Information

{0}: The value of the webservices.xml <port-component-name>

Explanation

<servlet-link> and <ejb-link> were both omitted from the webservices.xml.

System Action

Processing is interrupted.

User Action

Possible causes are as follows:

- Either the <servlet-link> or <ejb-link> elements, or their values, were omitted from the webservices.xml, and
- a Web service endpoint class (a class with an @WebService annotation attached) that matches the webservices.xml <port-component-name> could not be found.

Correct the application to remove the cause of the error, and then execute again.

WSCONTAINER2102: **ejb component is not specified for endpoint '{0}'**

Variable Information

{0}: The value of the webservices.xml <port-component-name>

Explanation

The EJB application specified in the webservices.xml <ejb-link> could not be found.

System Action

Processing is interrupted.

User Action

Possible causes are as follows:

- The EJB application specified in the webservices.xml <ejb-link> could not be found, and
- a Web service endpoint class (a class with an @WebService annotation attached) that matches the webservices.xml <port-component-name> could not be found.

Correct the application to remove the cause of the error, and then execute again.

WSCONTAINER2103: **web component is not specified for endpoint '{0}'**

Variable Information

{0}: The value of the webservices.xml <port-component-name>

Explanation

The servlet definition specified in the webservices.xml <servlet-link> could not be found.

System Action

Processing is interrupted.

User Action

Possible causes are as follows:

- The servlet definition specified in the webservices.xml <servlet-link> could not be found, and
- a Web service endpoint class (a class with an @WebService annotation attached) that matches the webservices.xml <port-component-name> could not be found.

Correct the application to remove the cause of the error, and then execute again.

WSCONTAINER2104: An error occurred during the ijws-gen processing. {0}

Variable Information

{0}: Detail information

Explanation

An error occurred for the Web service deployment processing.

System Action

Processing is interrupted.

User Action

Take the action indicated in the detail message.

WSCONTAINER2105: The definition of the endpoint is incomplete. impl:{0} endpoint:{1} type:{2}

Variable Information

{0}: Web service endpoint definition class name

{1}: Value of the webservicess.xml <port-component-name>

{2}: Internal information

Explanation

The endpoint definition is incomplete.

System Action

Processing is interrupted.

User Action

Check whether the Web service endpoint class (a class with an @WebService annotation attached) that has the endpoint name specified in the webservicess.xml <port-component-name> exists.

If the @WebService annotation name parameter is omitted, the class name, without the package, is used as the endpoint name.

If the implementation class of the Web service endpoint is the default package (not a Java package), either migrate it to any Java package or specify the targetNamespace element and the serviceName element in the @WebService annotation.

WSCONTAINER2106: JWSEGEN FAILED

Explanation

Processing to generate the Web service definitions failed.

System Action

Processing is interrupted.

User Action

Take the required action, as follows:

1. Refer to the following files and find the output location of a message with the same ID as this message.

Windows32/64

```
%IS_HOME%\F3FMisjee\var\domains\interstage\logs\server.log
```

Solaris32/64 **Linux32/64**

```
/var/opt/FJSEvisjee/domains/interstage/logs/server.log
```

2. Refer to the message and stack trace output immediately prior to this message and take the required action. If message JAXWS1048 is output immediately prior to this message, also refer to the stack trace and message output immediately prior to that message and take the required action.

WSCONTAINER2111: jaxrpc compilation exception

Explanation

An error occurred during Web service deployment.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Refer to the message output immediately before this one and take action.
- If servlet-mapping for the Web service endpoint was not defined in WAR format and in web.xml, then define it.

If the problem is still not resolved, run the application on an IJServer in a J2EE runtime environment.

13.60 Messages that Contain "WSMGMT" in the Message ID

13.60.1 WSMGMT0000 to WSMGMT0099

WSMGMT0004:Descriptors could not be loaded for module {0}.

Variable Information

{0}: Application (module) name and exception content

Explanation

An exception occurred when creating or obtaining the Web service information.

System Action

Processing is continued.

User Action

Refer to the WebService definition information below, review it to make sure that it is set correctly, then re-execute.

- webservices.xml <port-component-name> tag

13.61 Messages Output to the Server Log when Java EE is Used

This section explains the messages output to the server log without a message ID when Java EE is used.

The server has decided to close this client connection.

Explanation

The JMX connection to another process has timed out.

System Action

Processing is continued.

User Action

No action is required in response to this message because, if required, the JMX connection is created again.

If error or warning messages were output before and after this message, refer to those messages and take the required action.

Failed to restart: java.rmi.NoSuchObjectException: no such object in table**Explanation**

The connection to the other process was denied because it has finished or is in a high-load state.

System Action

Processing is continued.

User Action

If error or warning messages were output before and after this message, refer to those messages and take the required action. Otherwise, no action is required.

Failed to restart: java.io.IOException: Failed to get a RMI stub: {0}**Variable Information**

{0}: Detail message

Explanation

The connection to the other process was denied. The connection destination process might have been terminated, or there might be a high-load state.

System Action

Processing is continued.

User Action

If an error/warning message was output to the system log/event log or before or after this one, then take the recommended action. If no error/warning message was output, then no action is necessary.

Failed to call the method close():{0}**Variable Information**

{0}: Detail message

Explanation

The connection to the other process was denied. The connection destination process might have been terminated, or there might be a high-load state.

System Action

Processing is continued.

User Action

If an error/warning message was output to the system log/event log or before or after this one, then take the recommended action. If no error/warning message was output, then no action is necessary.

Failed to check connection: {0}**Variable Information**

{0}: Detail message

Explanation

The connection to the other process was denied. The connection destination process might have been terminated, or there might be a high-load state.

System Action

Processing is continued.

User Action

If an error/warning message was output to the system log/event log or before or after this one, then take the recommended action. If no error/warning message was output, then no action is necessary.

13.62 Messages Output Without a Message ID During a JMS Operation when Java EE is Used

This section explains the messages output without a message ID during a JMS operation (for example, the execution of a JMS command) when Java EE is used.

13.62.1 Messages Output for the imqsvcadmin Command

Could not set event message in registry: {0}

Variable Information

{0}: Error message

Explanation

Event message registration failed.

System Action

Processing is interrupted.

User Action

Refer to the error message({0}) and fix the error.

Failed to install service Interstage Message Queue Broker:

Explanation

A message broker is already registered in the service.

System Action

Processing is interrupted.

User Action

Only one message broker can be registered in the service.

For details on the command, refer to "imqsvcadmin".

Failed to remove event message from registry: {0}

Variable Information

{0}: Error message

Explanation

Event message deletion failed.

System Action

Processing is interrupted.

User Action

Refer to the error message {0} and fix the problem.

Failed to remove service Interstage Message Queue Broker:

Explanation

The message broker is not registered in the service.

System Action

Processing is interrupted.

User Action

Check whether the message broker is registered in the service.

For details on the command, refer to "imqsvcadm".

Failed to remove service Interstage Message Queue Broker:

Explanation

Deletion is in progress for the specified message broker service.

System Action

Processing is interrupted.

User Action

Stop the message broker.

13.62.2 Messages Output for the imqcmd Command

Error while performing this operation on the broker. No such connection: {0}

Variable Information

{0}: Connection ID

Explanation

The specified connection ID does not exist.

System Action

Processing is interrupted.

User Action

Check that the connection ID shown in variable information {0} exists, and then execute the command again.

For details on the command, refer to "imqcmd".

Error while performing this operation on the broker. No such service: {0}

Variable Information

{0}: Service name

Explanation

The specified service does not exist.

System Action

Processing is interrupted.

User Action

Check that the service name shown in variable information {0} exists, and then execute the command again.

For details on the command, refer to "imqcmd".

**Error while performing this operation on the broker.
Unable to paused unknown destination {0}: {1}**

Variable Information

{0}: Destination type
{1}: Destination name

Explanation

The specified physical storage destination does not exist.
The physical storage destination name or the physical storage destination type is incorrect.

System Action

Processing is interrupted.

User Action

Check that the physical storage destination shown in variable information {0} and {1} exists, and then execute the command again.
For details on the command, refer to "imqcmd".

**Error while performing this operation on the broker.
unknown durable subscription {0}: {1}**

Variable Information

{0}: durable subscription name
{1}: Client ID

Explanation

The durable subscription name or the client ID is incorrect.

System Action

Processing is interrupted.

User Action

Check for errors in the durable Subscriber and client ID shown in variable information {0} and {1}, and then execute the command again.
For details on the command, refer to "imqcmd".

**Error while performing this operation on the broker.
Unable to destroy destination: {0}, because {1}**

Variable Information

{0}: Destination name
{1}: Error cause

Explanation

Deletion of the physical storage destination failed.

System Action

Processing is interrupted.

User Action

Take the appropriate action in accordance with the error cause.

- If "Unknown destination {0} of type T" or "Unknown destination {0} of type Q":
Check for errors in the physical storage destination name and physical storage destination type.
 - If "IJMQ_B4193: The Dead Message Queue can not be destroyed":
The dead message queue cannot be deleted.
- For details on the command, refer to "imqcmd".

**Error while performing this operation on the broker.
Could not locate destination {0}**

Variable Information

{0}: Destination name

Explanation

The physical storage destination name or the physical storage destination type is incorrect.

System Action

Processing is interrupted.

User Action

Check whether the specified physical storage destination name or the specified physical storage destination type is incorrect.

For details on the command, refer to "imqcmd".

**Error while performing this operation on the broker.
Unable to resume unknown destination {0}: {1}**

Variable Information

{0}: Destination type
{1}: Destination name

Explanation

The physical storage destination name or the physical storage destination type is incorrect.

System Action

Processing is interrupted.

User Action

Check whether the physical storage destination shown in variable information {0} and {1} exists, and then execute the command again.

For details on the command, refer to "imqcmd".

**Error while performing this operation on the broker.
Max Active Consumer count can not be 0**

Explanation

The MaxNumActiveConsumers setting failed.

System Action

Processing is interrupted.

User Action

Zero cannot be set as the value of the MaxNumActiveConsumers property.

Specify the correct value in the MaxNumActiveConsumers property, and then execute the command again.

For details on the command, refer to "imqcmd".

The connection identifier specified ({0}) is not valid, it is not a long integer. Please run the 'list cxn' command to list the valid connection identifiers.

Variable Information

{0}: Connection ID

Explanation

Command execution failed because an invalid connection ID was specified.

System Action

Processing is interrupted.

User Action

Specify the correct connection ID value, and then execute the command again.

For details on the command, refer to "imqcmd".

13.62.3 Messages Output for imqbrokerd

The broker instance {0} does not exist.

Variable Information

{0}: Message broker name

Explanation

The command failed because a message broker name that does not exist was specified.

System Action

Processing is interrupted.

User Action

A message broker that does not exist cannot be deleted.

Specify the correct value for the message broker name, and then execute the command again.

For details on the command, refer to "imqbrokerd".

**Error occurred during initialization of VM
Incompatible initial and maximum heap sizes specified**

Explanation

A maximum heap size smaller than the initial heap size cannot be specified.

System Action

Processing is interrupted.

User Action

The following situations may apply:

- If -Xms and -Xmx are specified at the same time:

Revise the specified values, and then execute the command again.

- If only -Xms or -Xmx is specified:

Check the default value for the unspecified value, revise the specified value, and then execute the command again.

For details on the command, refer to "imqbrokerd".

ERROR: java.io.IOException: failed to delete {0}

Variable Information

{0}: File name for which deletion failed

Explanation

Message broker deletion failed.

System Action

Processing is interrupted.

User Action

A message broker cannot be deleted while it is being started.

For details on the command, refer to "imqbrokerd".

**Exception in thread "main"
java.lang.NoClassDefFoundError: {0}**

Variable Information

{0}: value of -vmargs option

Explanation

An invalid value was specified for -vmargs.

System Action

Processing is interrupted.

User Action

Revise the parameter specified for -vmargs.

For details on the command, refer to "imqbrokerd".

**Unrecognized option: {0}
Could not create the Java virtual machine.**

Variable Information

{0}: value of -vmargs option

Explanation

An invalid value was specified for -vmargs.

System Action

Processing is interrupted.

User Action

Revise the parameter specified for -vmargs.

For details on the command, refer to "imqbrokerd".

ERROR: Could not start the Broker's portmapper service on port {0}

Variable Information

{0}: Port number

Explanation

The broker cannot be started using the specified port number.

System Action

Processing is interrupted.

User Action

A port number that is already being used was specified.

Specify a port number that is not being used, and then execute the command again.

For details on the command, refer to "imqbrokerd".

13.62.4 Messages Starting with "imq" Output Using the Java EE Operation Commands

These are the messages output for the following commands:

- imqbrokerd
- imqcmd
- imqsvcadmin
- imqusermgr

Error: An argument was expected for option: {0}.

Variable Information

{0}: Option name

Explanation

Command execution failed because an option parameter was not specified.

System Action

Processing is interrupted.

User Action

Specify the correct value for the parameter shown in variable information {0}, and then execute the command again.

Refer to "Java EE operation commands" for details of the executed command.

Error: Invalid J2SE location: {0} J2SE location was specified using: {1}

Variable Information

{0}: Java home directory

{1}: Additional information

Explanation

Command execution failed.

System Action

Processing is interrupted.

User Action

Specify the correct value for the parameter shown in variable information {0}, and then execute the command again.

Refer to "Java EE operation commands" for details of the executed command.

Starting process failed. Could not execute {0}

Variable Information

{0}: Maintenance information

Explanation

The command parameter is invalid.

System Action

Processing is interrupted.

User Action

Check the content shown in variable information {0}, specify a valid value for the command parameter, then re-execute the command.

13.62.5 Messages Output to the Broker Log

WARNING: Internal error: {0}

Variable Information

{0}: Cause of issue

Explanation

An internal conflict occurred at the broker.

System Action

Processing is interrupted.

User Action

Check the cause of the issue shown in variable information {0} and take any required action.

13.63 Messages Output to the Interstage Java EE Admin Console

This section explains the messages output to the Interstage Java EE Admin Console.

13.63.1 Messages Output to the Interstage Java EE Admin Console

Authentication Failed Re-enter your userID and password.

Explanation

Failed to log in with the user ID or password which was entered.

The user ID or password which was entered is invalid.

User Action

Enter a valid user ID and password.

Authentication Failed Access to the specified resource has been forbidden. Click the close button, please close the window

Explanation

Failed to log in with the user ID or password which was entered.

Could not access the Interstage Java EE Admin Console with the user ID which was entered.

User Action

Log in with a user ID which has access privileges.

Contact the system administrator to check the settings status for the user ID access privileges.

System Administrator Action

Check whether appropriate access privileges have been assigned.

13.64 Messages Output by Executing the ijsmartsetup Command

This section explains the messages that are output by executing the ijsmartsetup command.

13.64.1 Messages Output when the ijsmartsetup Command is Executed

This section explains the messages that are output when the ijsmartsetup command is executed.

Database access verification failed.

Explanation

Database access verification failed.

System Action

The password alias that was created and the connection pool are deleted, and there is a new request regarding the database that is to be used.

User Action

Take action according to the string that is contained in the message that was output at the same time. Details are as follows:

String	User action
ISJEE_OM2997	<p>The Interstage Java EE DAS service has stopped. Start the Interstage Java EE DAS service, and then re-execute. To start the Interstage Java EE DAS service, execute the ijdastart command. For details, refer to "ijdastart" in the "Java EE Operation Commands" chapter.</p> <p>Additionally, check whether another user has performed operation settings.</p>
JDBCRA0002	<p>The Interstage Java EE DAS service cannot correctly load the JAR files shown below. Check whether there is a problem with the access, or whether the file is corrupt, and then re-execute.</p> <ul style="list-style-type: none">- When using [Symfoware] Windows32/64 <Symfoware Server client functionality installation directory>\JDBC\fjjdbc\lib\fsymjdbc4.jar Solaris32/64 Linux32/64 <JDBC driver installation directory>/FJSVsymjd/fjjdbc/lib/fsymjdbc4.jar- When using [Oracle] Windows32/64 <JDBC driver storage directory>\ojdbc6.jar Solaris32/64 Linux32/64 <JDBC driver storage directory>\ojdbc6.jar
JYP1010E	<p>The RDB system may not have started. Start the RDB system, and then re-execute.</p>
JYP1011E	<p>One of the following is invalid:</p> <ul style="list-style-type: none">- The user for database connection that was specified

String	User action
	<ul style="list-style-type: none"> - The user password for database connection that was specified Specify a correct value, and then re-execute.
JYP1027E	The database server name or IP address that was specified is invalid. Specify a correct value, and then re-execute.
JYP1087U	The database port number that was specified is invalid. Specify a correct value, and then re-execute.
JYP2005E	One of the following is invalid: <ul style="list-style-type: none"> - The RDB system name that was specified - The data resource name (database name) that was specified Specify a correct value, and then re-execute.
JYP5022U	The RDB system name that was specified is invalid. Specify a correct value, and then re-execute.
JYP5031E	One of the following is invalid: <ul style="list-style-type: none"> - The database server name or IP address that was specified - The database port number that was specified - The user for database connection that was specified - The user password for database connection that was specified Specify a correct value, and then re-execute.
JYP9038E	One of the following is invalid: <ul style="list-style-type: none"> - The database server name or IP address that was specified - The database port number that was specified - The RDB system name that was specified - The data resource name (database name) that was specified Specify a correct value, and then re-execute.
LDWrapper	<div style="border: 1px solid green; padding: 2px; display: inline-block;">Windows32/64</div> The following may not have been set in the PATH environment variable: <ul style="list-style-type: none"> - [Symfoware Server client installation destination directory]\JDBC\fjjdbc\bin - Windows(R) system directory\ESQL\BIN Set the PATH environment variable, restart the Interstage Java EE DAS and Interstage Java EE Node Agent services, and then re-execute. For details on how to restart these services, refer to the Java EE Operator's Guide and the Reference Manual (Command Edition). <div style="border: 1px solid red; padding: 2px; display: inline-block;">Solaris32/64 Linux32/64</div> The Symfoware client may not have been installed normally. Check, and then re-execute.
ORA-01017	One of the following is invalid: <ul style="list-style-type: none"> - The user for database connection that was specified - The user password for database connection that was specified Specify a correct value, and then re-execute.
ORA-12514	Take one of the following actions, and then re-execute: <ul style="list-style-type: none"> - The database service may not have started. Start the database service. - The service name that was specified may be invalid. Specify a correct value.

String	User action
The Network Adapter could not establish the connection	Take one of the following actions: <ul style="list-style-type: none"> - The database port number that was specified is invalid. Specify a correct value. - The TNS listener may not have started in the connection destination database server. - The database service may not have started. Start the database service.
This pool is not registered with the runtime environment	The connection pool that was created was deleted before the database access was verified. Check whether another user has performed operation settings.
Unknown host specified	The database server name or IP address that was specified is invalid. Specify a correct value, and then re-execute.

If the message that was output at the same time is not shown above or the problem cannot be resolved by taking the above action, refer to the manual for the database that you are using before taking action, and then re-execute.

System error occurred. DETAIL={0}

Variable Information

{0}: Detail

Explanation

A system error occurred because of an environment abnormality or some other reason.

System Action

The command ends abnormally.

User Action

Refer to the detail, and then remove the problem. If the problem cannot be resolved, execute the iscollectinfo command to collect the investigation information and then contact Fujitsu technical support.

Internal error occurred. DETAIL={0}

Variable Information

{0}: Detail

Explanation

An error occurred in internal processing.

System Action

The command ends abnormally.

User Action

Refer to the detail, and then remove the problem. If the problem cannot be resolved, execute the iscollectinfo command to collect the investigation information and then contact Fujitsu technical support.

Processing failed. DETAIL={0}

Variable Information

{0}: Detail

Explanation

Processing failed.

System Action

The command ends abnormally.

User Action

Refer to the detail, and then remove the problem. If the problem cannot be resolved, execute the `iscollectinfo` command to collect the investigation information and then contact Fujitsu technical support.

The application can now be accessed from the browser.

<Example of access URL>

{0}

Variable Information

{0}: Example of URL that can access the application from the browser

Explanation

The resource creation was successful, so the application can now be accessed from the browser.

System Action

The command continues processing.

User Action

The URL displayed by this command may not always be correct. In this case, take the actions shown below:

- To access the application remotely from another machine by opening a web browser, specify the host name or the IP address of the server that runs Java EE as the URL.
- If a web server is used for operations, when Interstage HTTP Server has been installed, for example, check the following:
 - Check the web server settings, and use the values for SSL usage, host name/IP address, and port number for the URL.
 - Check whether the web server that is used for operations is running. The web server that is created at the time of installation can be started using `"ihsstart -n FJapache"`.
- If the web application that was deployed must access a specific path, and not the root (/), specify the appropriate path in the URL.

Example: If the web application must access the path "abc", access `"http://localhost/sample/abc"`, and not `"http://localhost/sample/"`.

13.65 Exception Information Output when Java EE is Used

This section explains exception information related to Java EE.

13.65.1 Exception information starting with `com.sun.enterprise.connectors`

This section explains the exception information that is output when a connector service error is detected.

Refer to the cause and the targeted object name output in the exception message and take the required action.

Another exception might be output after "Caused by:" in the exception stack trace. This expresses the root cause, so also check the root cause exception information.

Explanation of exceptions

`com.sun.enterprise.connectors.ConnectorRuntimeException`

Explanation

An error was detected during connector service processing.

Cause

A possible cause is as follows:

- If the exception message is "JMS resource not created : {0} ":
 - JMS resource generation failed for the item shown in variable information {0}. There might be a definition error.
- If the exception message is "Failed to start resource adapter":
 - The resource adapter failed to start. An exception might have occurred when the resource adapter start() method was executed.

User Action

Take the following action:

- If the exception message is "JMS resource not created : {0} ":
 - Refer to the EJB terms, check the deployment descriptor (ejb-jar.xml) definition, and correct any errors.
 - For a Message-driven Bean, refer to "Message-driven Bean execution environment", check the "Interstage EJB application deployment descriptor (sun-ejb-jar.xml)" definition, and correct any errors.
- If the exception message is "Failed to start resource adapter":
 - Identify the root cause of the exception from the exception information, remove the cause of the exception, then activate the connector.

13.65.2 Exception information starting with `com.sun.enterprise.security.auth.realm`

This section explains the exception information output when the realm is running. If a stack trace was output to the exception information, then 'Caused by:' might also be output after the stack trace as another exception - this shows the root cause, so check this as well.

Explanation of exceptions

`com.sun.enterprise.security.auth.realm.BadRealmException: {0}`

Variable Information

{0}: Error information

Explanation

An exception occurred while initializing the realm.

System Action

Processing is interrupted.

User Action

Check the cause of the error {0}, then take action.

If the problem is still not resolved, also refer to "[Chapter 14 Troubleshooting](#)" > "[14.9 Java EE Security Errors](#)".

13.65.3 Exception information starting with `com.sun.messaging`

This section explains the exception information that is output when communicating with the message broker.

Another exception might be output after "Caused by:" in the exception stack trace. This expresses the root cause, so also check the root cause exception information.

Explanation of exceptions

`com.sun.messaging.jmq.jmsclient.ExceptionHandler`

Explanation

An error was detected in the request from the client.

Cause

The imqcmd command with the -f option specified might have been executed without the -u option being specified.

User Action

Specify the -u option and execute the imqcmd command again.

[com.sun.messaging.jmq.jmsserver.util.BrokerException: {0}](#)

Variable Information

{0}: Error cause

Explanation

An error occurred for the message broker.

System Action

Processing is interrupted.

User Action

Check the error cause in variable information {0} and take the required action.

[com.sun.messaging.jms.IllegalStateException: {0}](#)

Variable Information

{0}: Error cause

Explanation

The application attempted to call the JMS API method but the JMS object is already closed.

System Action

Processing is interrupted.

User Action

Check the application.

- The API method of a JMS object that is already closed cannot be called.

[com.sun.messaging.jms.JMSEException](#)

Explanation

An error was detected in the request from the client.

User Action

The exception message includes a message ID starting with "IJMQ". Refer to this message ID in "Messages" and take the required action.

13.65.4 Exception information starting with java or javax

This section explains the exception information that is output during application operations. For further information, refer to the Java API specifications and take the required action.

Another exception might be output after "Caused by:" in the exception stack trace. This expresses the root cause, so also check the root cause exception information.

Explanation of exceptions

[java.io.FileNotFoundException](#)

Explanation

Detection of the specified file failed.

Cause

When the message broker was started, creation failed for the file that used the message broker instance name specified in the `-name` option.

User Action

Reduce the number of characters in the message broker instance specified in the `-name` option when the message broker is started, and then execute again.

java.lang.ArrayIndexOutOfBoundsException

Explanation

If the `java.lang.ArrayIndexOutOfBoundsException` issuer is `org.apache.xml.resolver.readers.TextCatalogReader`, `org.apache.xml.resolver.Catalog`, `com.sun.org.apache.xml.internal.resolver.readers.TextCatalogReader`, or `com.sun.org.apache.xml.internal.resolver.Catalog`, a catalog file may be invalid.

Cause

If the `java.lang.ArrayIndexOutOfBoundsException` issuer is `org.apache.xml.resolver.readers.TextCatalogReader`, `org.apache.xml.resolver.Catalog`, `com.sun.org.apache.xml.internal.resolver.readers.TextCatalogReader`, or `com.sun.org.apache.xml.internal.resolver.Catalog`, possible causes are as follows:

- Failed to parse the catalog files.

User Action

If the `java.lang.ArrayIndexOutOfBoundsException` issuer is `org.apache.xml.resolver.readers.TextCatalogReader`, `org.apache.xml.resolver.Catalog`, `com.sun.org.apache.xml.internal.resolver.readers.TextCatalogReader`, or `com.sun.org.apache.xml.internal.resolver.Catalog`, take the following action:

- Review the catalog file format and then re-execute.



Enter descriptions in the catalog files according to the OASIS XML Catalog specifications.

java.lang.ClassCastException

Explanation

Object class cast (type conversion) failed.

Cause

The application attempted to cast an object to a class not in an inheritance relationship.

User Action

Check the application implementation and correct it so that the object is cast to an appropriate class.

The class name for which the cast failed might be output in the exception message as follows:

```
java.lang.ClassCastException: < class name for which cast failed >
```

If the class name for which the cast failed is a `<$Proxy numeric value>`, such as `"$Proxy99"`, and the exception was issued when the application was started, the possible causes are as follows:

- There is a mixture of implementations and version definitions with different specifications, such as EJB2.1 formats and EJB3.0 formats, within the one application.

- The class type defined in the application definition file or in an annotation is incorrect (such as a Remote interface class being defined in the deployment descriptor <local-home> tag, or similar).

By performing deployment with deployment module verification enabled, the application can be checked at the time of application deployment for conformance to Java EE conventions.

java.lang.ClassNotFoundException

Explanation

The application attempted to use a class character string name to load a class by means of a class loader but a class definition with the specified name was not found.

Cause

The application or the specified class path does not include a class with the specified name.

User Action

Add a class with the specified name to the application or class path.

If this error was issued when HotDeploy was performed for an application with no implementation problems, restart the JJSERVER cluster.

java.lang.IllegalArgumentException

Explanation

An illegal or inappropriate argument was passed to the method.

Cause

An illegal or inappropriate argument might have been passed to the API and method.

User Action

Refer to the exception message and the stack trace and check whether the application passed an illegal or inappropriate argument to the API and method.

java.lang.IllegalStateException

Explanation

This message indicates that a method was called at an illegal or inappropriate time. This means that the Java environment or the Java application status was not suitable for the requested operation.

Cause

Possible causes are as follows:

- If the exception message is "Operation not allowed":
The requested operation is not permitted.
- If the exception message is "EJB not in READY state":
The status is one in which calling is not possible.
- If the exception message is "EJBObject not available":
The EJBObject cannot be fetched.
- If the exception message is "EJBLocalObject not available":
The EJBLocalObject cannot be fetched.
- If the exception message is "ERROR: only SessionBeans with bean-managed transactions can obtain UserTransaction":
A UserTransaction cannot be fetched by a Session Bean that has "Container" as the transaction management type.
A thread created by the application performed the transaction acquisition.

- If the exception message is "No transaction context.":
There is no transaction context because the transaction has not been started.
The transaction operation method was executed by a thread created by the application.
- If the exception message is "EJB Timer Service not available":
Initialization of the EJB Timer Service might have failed.
- If the exception message is "cannot add non-XA Resource to global JTS transaction.":
The conditions for running resources on global transactions and a non-XA resource may have been used.

User Action

Take the following action:

- If the exception message is "Operation not allowed":
Refer to the EJB terms and correct the application so that the operation is executed by a method that can call the executed method.
- If the exception message is "EJB not in READY state":
Refer to the EJB terms and correct the application so that the operation is executed by a method that can call the executed method.
- If the exception message is "EJBObject not available":
Refer to the EJB terms and correct the application so that the operation is executed by a method that can call the getEJBObject method.
- If the exception message is "EJBLocalObject not available":
Refer to the EJB terms and correct the application so that the operation is executed by a method that can call the getEJBLocalObject method.
- If the exception message is "ERROR: only SessionBeans with bean-managed transactions can obtain UserTransaction":
Correct the application so that it does not perform UserTransaction operations. If you want to rollback the transaction, use the EJBContext.setRollbackOnly method.

Java EE terms prohibit transaction management by threads created by applications. Therefore, use threads called from containers to execute transaction management.
- If the exception message is "No transaction context.":
Correct the application so that the method is executed when the transaction is in the started state.

Java EE terms prohibit transaction management by threads created by applications. Therefore, use threads called from containers to execute transaction management.
- If the exception message is "EJB Timer Service not available":
Check whether the EJB5108 message is output when the JJSERVER cluster starts up - if it is, then take action according to this message.
- If the exception message is "cannot add non-XA Resource to global JTS transaction.":
Either change the environment so that the conditions for running resources on global transactions do not apply, or use an XA resource. It is recommended that you change the environment to use local transactions as far as is possible.

java.lang.NoClassDefFoundError

Explanation

The class failed to load.

Cause

A required class is not included in the application or the specified class path.

User Action

Add the class included in the exception message to the application or the class path. If Java commands are used to execute a Java SE standalone application, note the following and take the required action:

- If the class for which the error was issued is "javax/security/jacc/PolicyContextException":
The class path is not set in javaee.jar. Refer to "Setting environment variables" and set the correct class path.
- If the class for which the error was issued is "com/sun/enterprise/admin/monitor/registry/MonitoringLevelListener":
The class path is not set in appserv-admin.jar. Refer to "Setting environment variables" and set the correct class path.
- If the class for which the error was issued is "com/sun/jms/spi/xa/JMSXAQueueConnectionFactory":
The class path is not set in imqjmsra.jar. Refer to "Setting environment variables" and set the correct class path.

If the exception was issued for an IJServer in a J2EE execution environment, also note the following and take the required action:

- If the class for which the error was issued is "com/sun/appserv/management/util/misc/RunnableBase\$HowToRun":
The class path is not set in appserv-ext.jar. Refer to "Setting the IJServer environment in a J2EE execution environment" and set the correct class path.
- If the class for which the error was issued is "javax/servlet/jsp/JspApplicationContext":
Check whether appserv-rt.jar is set. If it is set, delete the appserv-rt.jar definition and set appserv-rt-client.jar instead.

java.lang.NoSuchMethodError

Explanation

This exception is thrown if the called method has no definition.

Cause

Possible causes are as follows:

- The same class exists in the setting destinations of both the application class loader and the Web class loader and a conflict occurs.
- The same class exists in both the parent (ancestor) class loader settings destination and the application and a conflict occurs.

User Action

Refer to "Class loader configuration" and take the following action:

- Check whether the same class exists in the setting destinations of both the application class loader and the Web class loader. If so, perform the following steps:
Investigate making changes to the application configuration.
Refer to "Changing the Web class loader delegate model" and investigate whether the problem can be avoided by setting delegation to the parent (ancestor) class loader.
- Check whether the same class exists in both the parent (ancestor) class loader settings destination and the application. If so, perform the following steps:
Change the class loader settings so that the same class is not set in both the parent (ancestor) class loader settings destination and the application.
If the parent (ancestor) class loader settings cannot be changed, investigate rebuilding the application that has the class version set for the parent (ancestor) class loader.

java.lang.NoSuchMethodException

Explanation

This exception is thrown if the called method has no definition.

Cause

If the exception is thrown from the execution environment when a Web service client is executed, the main possible cause is as follows:

- An incorrect type is specified in the type element in the javax.xml.ws.WebServiceRef annotation.

User Action

Take the following action:

- Make the variable type declaration match the type specification in the type element in the javax.xml.ws.WebServiceRef annotation.

java.lang.UnsupportedOperationException

Explanation

The requested operation is not supported.

Cause

An unsupported API was executed.

User Action

Refer to the exception message and the stack trace and check whether the application called an unsupported API.

java.net.SocketException: No buffer space available (maximum connections reached?): connect

Explanation,Cause, User Action

Refer to "[14.2.5 Nonpaged Pool Leaks in Windows Server\(R\) 2003](#)" under "Troubleshooting".

java.rmi.ServerException

Explanation

The exception was issued by a server application that was called using RMI-IIOP communication.

Cause

Some sort of error occurred at the server application.

User Action

Refer to the server log of the IIServer cluster where the server application was deployed, check the error information, and take the required action.

If the IIOP communication load balancing function linked to IPCOM is used, check whether the IIServer cluster targeted for load balancing is stopped.

java.security.AccessControlException

Explanation

There are insufficient access privileges.

Cause

When the exception message is as follows, it means there were insufficient access privileges to perform IIOP communication:

access denied (java.io.SerializablePermission enableSubclassImplementation)

This may occur when Security Manager is used.

User Action

When the exception message is as follows, take the action advised in 1 or 2:

access denied (java.io.SerializablePermission enableSubclassImplementation)

1. Set the following as the system property:

```
jdk.corba.allowOutputStreamSubclass=true
```

2. Add the following permission to the policy file:

```
permission java.io.SerializablePermission "enableSubclassImplementation";
```



See

For details on editing the policy file and adding access privileges, refer to "[5.3.8.2 Editing the Policy File](#)" and "[5.3.8.3 Application Access Privileges Settings](#)".

java.sql.SQLException java.sql.BatchUpdateException

Explanation

An error occurred during JDBC API execution.

Cause

A database error occurred.

User Action

- If the character string below is output in the message, a Symfoware error has occurred.

Refer to the Symfoware "RDB Message Reference" and take the required action.

```
JYPXXXXE ('X' is a numeric)
```

- If the character string below is output in the message, an Oracle error has occurred.

Refer to the Oracle "Error Messages" and take the required action.

```
ORA-XXXXX ('X' is a numeric)
```

- If the following string was output to the message, processing was executed for the connection which is already closed (the close method was executed) in the application. Review the application.

```
Connection closed
```

- If the JDBC driver version being used is not supported by the Oracle database, incidents such as not being able to insert data correctly might occur.

Check whether the JDBC driver version being used is a version supported by the Oracle database.

- If an org.apache.derby package exception is output as "Caused by:", a Java DB error occurred. Refer to the Java DB manual and take the required action.

- If the exception message is as shown below, the maximum number of pool size connections is being used and the wait time has exceeded the maximum wait time. Wait a while and then try again, or check whether suitable values are set for the maximum pool size and the maximum wait time.

```
Error in allocating a connection. Cause: In-use connections equal max-pool-size and expired max-wait-time. Cannot allocate more connections.
```

- If the exception message "This pool is not registered with the runtime environment : null" is output, access to the JDBC resource used for automatic table generation might have failed. Check the JDBC resource name defined in the deployment descriptor of the application and execute the command again.

- If a Symfoware database is being used, the "statement timeout" function cannot be used. If statement timeout is enabled, an error message is output when the application server calls the "setQueryTimeout" method in relation to Statement, PreparedStatement, and CallableStatement objects.

The specified method is not supported by this driver.

javax.ejb.TransactionRolledbackLocalException

Explanation

The transaction is already rolled back or marked for rollback.

Cause

Processing is interrupted because the transaction status is invalid.

User Action

Ensure that the transaction status is appropriate when the application is executed. Refer to "Transaction monitoring and freezing functions" for information concerning transaction states.

A transaction timeout might have occurred. If so, revise the following definition values:

- Transaction timeout definition value

Revise the value specified for transaction timeout.

Refer to "7.8.13 Transaction Service Definition Items", for information concerning transaction timeout definition values.

- <ejb><cmt-timeout-in-seconds> tag definition value

If the transaction management type for the EJB application is "Container" and if the <ejb><cmt-timeout-in-seconds> tag of the "Interstage EJB application deployment descriptor (sun-ejb-jar.xml)" is defined, revise the specified value.

javax.jms.IllegalStateException: {0}

Variable Information

{0}: Error cause

Explanation

The application attempted to call a JMS API method that cannot be used.

System Action

Processing is interrupted.

User Action

Check the application.

- The QueueSession interface cannot call the following methods:

- unsubscribe()
- createTemporaryTopic()

- The TopicSession interface cannot call the following methods:

- createSender()
- createBrowser()
- createTemporaryQueue()

javax.jms.JMSException

Explanation

An error was detected in the request from the client.

User Action

The exception message includes a message ID starting with "IJMQ". Refer to this message ID in "Messages" and take the required action.

javax.naming.InvalidNameException

Explanation

The JNDI name specified in the JNDI API is invalid.

Cause

The JNDI name specified in the JNDI API is invalid. If the exception message is "Name is empty", a blank character (character string length of 0) might have been specified.

User Action

Specify the correct JNDI name and then execute again.

javax.naming.NameAlreadyBoundException

Explanation

Binding cannot be added because the specified JNDI name is already bound to another object.

Cause

Use of the JNDI name that the application tried to bind is duplicated.

User Action

Correct the application so that use of the JNDI name is not duplicated.

If this error was issued when HotDeploy was performed for an application with no implementation problems, restart the IJServer cluster.

javax.naming.NameNotFoundException

Explanation

The server application corresponding to the specified JNDI name was not found.

Cause

Possible causes are as follows:

- If the exception message is "No object bound to name java:comp/XXX" (XXX is a variable):
 - The reference name of the object to be referenced is not defined in the deployment descriptor file. If the environment naming context is being used, information on the referenced object must be defined in the deployment descriptor file.
 - If, in addition to the exception message, exception information concerning the reason the exception was thrown is output, and if that exception is "org.omg.CORBA.XXX" (XXX is a variable), a naming service connection using a JNDI name specified in INS format (including the connection destination host name and port number) failed.
- If the exception message is "{0} not found" ({0} is a JNDI name, subcontext name, or logical name):
 - The specified JNDI name object has not been registered or deployed in the IJServer cluster that corresponds to the host name and port number specified as the target.
 - The resource or application is disabled in the IJServer cluster that corresponds to the host name and port number specified as the target.
 - The JNDI name specified in the deployment descriptor file mapped-name tag or the Interstage deployment descriptor file jndi-name tag is incorrect.
 - The definition information (ejb-ref tag specification or similar) in the deployment descriptor file for the referenced object is incorrect.

- If the exception message is "{0}#null not found" ({0} is a JNDI name):
 - The interface definition is missing from the deployment descriptor file ejb-ref tag.
- If the exception message is "Lookup of java:comp/UserTransaction not allowed for Container managed Transaction beans":
 - UserTransaction lookup was executed by an EJB application where the transaction management type is "Container".

User Action

Take the following action:

- If the exception message is "No object bound to name java:comp/XXX" (XXX is a variable):
 - Define the referenced object information in the deployment descriptor file and then execute again.
 - Check the JNDI name specified in INS format. Check whether the connection destination host name and port number are correct, and check whether the application is enabled at the connection destination. Remove the cause of the error and then execute again. If this does not fix the error, refer to "Exception information during IIOP communication" and check the meaning of the "org.omg.CORBA.XXX" (XXX is a variable) exception that caused the exception to be thrown and take the required action.
- If the exception message is "{0} not found" ({0} is a JNDI name, subcontext name, or logical name):
 - Check for errors in the host name and port number. Alternatively, deploy and register the referenced object in the calling destination IJServer cluster.
 - If the IIOP communication load balancing function linked to IPCOM is used, check all the IJServer clusters targeted for load balancing.
 - If the application or resource is disabled at the calling destination IJServer cluster, enable it.
 - If the deployment descriptor file mapped-name tag or the Interstage deployment descriptor file jndi-name tag is incorrect, specify the correct JNDI name.
 - Check whether the correct JNDI name and interface name for the referenced object are defined in the definition information (ejb-ref tag specification or similar) in the deployment descriptor file.
- If the exception message is "{0}#null not found" ({0} is a JNDI name):
 - Add the interface definition to the ejb-ref tag in the deployment descriptor file, and then execute again.
- If the exception message is "Lookup of java:comp/UserTransaction not allowed for Container managed Transaction beans":
 - Correct the application so that it does not perform UserTransaction lookup.



Note

JNDI is managed hierarchically. If the JNDI name is "jdbc/MyDS", then objects are managed in the "jdbc" subcontext using the logical name "MyDS". When an object is referenced in JNDI, this hierarchy is traced as part of the object search. For this reason, if the "jdbc" subcontext object does not exist when "jdbc/MyDS" is referenced, then the "jdbc not found" error occurs.

javax.naming.NamingException

Explanation

An error occurred during JNDI API execution.

Cause

- If the exception message is "invocation exception":
 - The JNDI API is called by a method (Enterprise Bean class constructor or similar) that cannot use the environment naming context.
 - The environment naming context is used by a thread created by the application.

- If the exception message is "java:comp namespace cannot be modified":
 - An API that performs object updates such as bind and unbind for the environment naming context cannot be executed.
- If the exception message is "ejb ref resolution error for remote business interface":
 - An error occurred while fetching the EJB 3.0 application business interface.
- If the exception message is "<JNDI name> is not found":
 - The environment property information passed when the InitialContext constructor was called is incorrect.

User Action

- If the exception message is "invocation exception":
 - Change the application so that execution is by a method able to call the JNDI API. If this does not fix the problem, refer to the Java API specification and take the required action.
 - Java EE terms prohibit use of the environment naming context by threads created by applications. Therefore, use threads called from containers to use the environment naming context.
- If the exception message is "java:comp namespace cannot be modified":
 - Correct the application so that it does not execute an API that performs object updates such as bind and unbind.
- If the exception message is "ejb ref resolution error for remote business interface":
 - If the exception is issued by an IJServer in a J2EE execution environment, correct the EJB application that is called and implement the Home or Remote interface as in EJB 2.1 or earlier.
- If the exception message is "<JNDI name> is not found":
 - If the exception is issued by an IJServer in a J2EE execution environment, check whether the correct environment properties are passed to the InitialContext constructor.

javax.naming.NoInitialContextException

Explanation

Generation of the javax.naming.InitialContext object failed.

Cause

- appserv-rt.jar is not set in the class path.
- The java.naming.factory.initial property setting is incorrect.
- If the exception is issued by an IJServer in a J2EE execution environment, appserv-rt-client.jar is not set in the application-specific library.

User Action

- Refer to "Setting environment variables" and set the correct class path.
- Refer to "Settings when generating the initial context" and set the correct value for the java.naming.factory.initial property.
- If the exception was issued by an IJServer in a J2EE execution environment, revise the settings for the application-specific library of the J2EE execution environment IJServer.

javax.transaction.RollbackException

Explanation

An exception was issued for the server application and the transaction was rolled back.

Cause

Some sort of error occurred at the server application.

User Action

Refer to the server log of the IIServer cluster where the server application is deployed, check the error information, and take the required action.

javax.transaction.xa.XAException

Explanation

The resource manager detected an error in an associated transaction.

Cause

An error occurred during processing within a resource managed by the resource manager.

User Action

- If the message "SQL Exception thrown from oracle driver: is output during recovery processing for an indoubt transaction, an Oracle error has occurred. Refer to subsequent error messages and take the required action.

Check whether the following permissions have been assigned to the user specified in the user property of the JDBC driver:

- SYS.PENDING_TRANS\$ SELECT permission
- SYS.DBA_2PC_NEIGHBORS SELECT permission
- If the message "XA Exception thrown from oracle driver: is output during recovery processing for an indoubt transaction, an Oracle error has occurred. Refer to subsequent error messages with the following format and take the required action.

ERR_CODE=XAException error code, MSG=XAException error message
--

Also, check whether the following permissions have been assigned to the user specified in the user property of the JDBC driver:

- DBA_PENDING_TRANSACTIONS SELECT permission
- SYS.DBMS_SYSTEM EXECUTE permission

13.65.5 Exception information starting with oracle.toplink.essentials

If an error occurs when using the Java Persistence API, the Interstage persistence provider throws exceptions in accordance with JPA terms. An exception starting with oracle.toplink.essentials might be thrown as the exception cause. This section explains that exception information.

If an exception explained here occurs, the following actions are effective:

- Most exceptions indicate environment or application problems. If required, check the environment and correct applications so that errors do not occur.
- Check the exception class name that appears in the exception information, and check the explanation and user action for that exception class.
- If a stack trace is output in the exception information, after the stack trace, another exception might be output as "Caused by:". This expresses the root cause, so also check this exception.
- The stack trace might enable identification of the class name and method name in the application for which the error was issued, and the class and method name of the Java Persistence API that was called.



All exception classes explained here inherit the java.lang.RuntimeException class, therefore it is possible to execute applications without a compile error occurring, even when the exception is not caught.

Additionally, if an exception is caught in the application, it will be a non-general purpose application, therefore you should not execute processing to catch exception classes starting with oracle.toplink.essentials. To catch exceptions in the application, change the definition in the API spec of the Java EE terms so that exceptions are caught. For example, the API spec for the javax.persistence.EntityManager persist method regulates that the javax.persistence.EntityExistsException, java.lang.IllegalStateException,

java.lang.IllegalArgumentException, and javax.persistence.TransactionRequiredException exception classes are returned, therefore change the definition so that these exception classes are caught.



Exception information format

```
Exception [TOPLINK-{0}] ({1}): {2}
Exception Description: {3}
Internal Exception: {4}
Target Invocation Exception: {5}
Mapping: {6}
Descriptor: {7}
Error Code: {8}
Call: {9}
Query: {10}
```

Variable Information

	Meaning
{0}	Error number
{1}	Internal information
{2}	Exception class name
{3}	Error information
{4}	Exception information wrapped in this exception
{5}	If the wrapped exception class is java.lang.reflect.InvocationTargetException, the target exception information returned from the getTargetException() method
{6}	Definition mapping information
{7}	Explanation
{8}	If the exception class in {4} is java.sql.SQLException or a java.sql.SQLException subclass, the database vendor-specific data code returned from the getErrorCode method. In other cases, "000".
{9}	SQL statement information
{10}	Internal information

If an item has no information, that line is not output.

If the SQL log function is not enabled, the SQL statement information line is not output.

Exception stack trace format

```
WARNING: ISJEE_JPA0020: caught throwable.
Local Exception Stack
{0}
Internal Exception Stack:
{1}
Target Invocation Exception Stack:
{2}

ERROR: ISJEE_JPA0022: caught throwable.
Local Exception Stack
{0}
Internal Exception Stack:
{1}
Target Invocation Exception Stack:
{2}
```

Variable Information

	Meaning
{0}	The exception information and stack trace for this exception
{1}	The exception stack trace wrapped in this exception
{2}	If the wrapped exception class is <code>java.lang.reflect.InvocationTargetException</code> , the target exception stack trace returned from the <code>getTargetException()</code> method

Items that have no information are not output.

Explanation of exceptions

[oracle.toplink.essentials.exceptions.ConcurrencyException](#)

Explanation

Java concurrency was infringed. If the thread being executed is interrupted and the `java.lang.InterruptedException` exception is thrown, this exception is wrapped.

User Action

Refer to the error information and check the cause. Remove the cause of the error and then execute again.

[oracle.toplink.essentials.exceptions.ConversionException](#)

Explanation

A conversion error occurred due to conversion of incompatible data.

User Action

Refer to the error information and check the cause. Remove the cause of the error and then execute again.

If the error number is 3001 and `java.lang.NullPointerException` is output at "Caused by:", the application might have attempted to store in the database a `java.lang.Character[]` type field for which null is specified in an array element. If so, ensure that values that can be converted to characters are specified in all elements and then execute again.

[oracle.toplink.essentials.exceptions.DatabaseException](#)

Explanation

An error occurred during database access.

User Action

Refer to the error information and the exception information returned from the JDBC driver and check the cause. Remove the cause of the error and then execute again.

[oracle.toplink.essentials.exceptions.DescriptorException](#)

Explanation

The definition content of the deployment descriptor file is incorrect. Alternatively, there is insufficient information defined.

User Action

Refer to the error information and check the cause. Remove the cause of the error and then execute again.

[oracle.toplink.essentials.exceptions.EJBQLException](#)

Explanation

Analysis of the JPQL query statement failed.

User Action

Refer to the error information and check the cause. Remove the cause of the error and then execute again.

[oracle.toplink.essentials.exceptions.EntityManagerSetupException](#)

Explanation

Creation of the entity manager factory or the entity manager failed.

User Action

Refer to the error information and the exception information wrapped in this exception and check the cause. Remove the cause of the error and then execute again.

[oracle.toplink.essentials.exceptions.IntegrityException](#)

Explanation

An error occurred during initialization of the entity manager factory or the entity manager.

The oracle.toplink.essentials.exceptions.DescriptorException exception is output below "Descriptor Exceptions:". If an exception other than the above is thrown, that exception information is output under "Runtime Exceptions:".

User Action

Refer to the error information and check the cause. Remove the cause of the error and then execute again.

[oracle.toplink.essentials.exceptions.OptimisticLockException](#)

Explanation

A record is being updated or deleted from a table by another transaction.

User Action

Search for the record again and then execute the processing again.

[oracle.toplink.essentials.exceptions.PersistenceUnitLoadingException](#)

Explanation

Read processing failed for the deployment descriptor file. Alternatively, the definition content is incorrect or insufficient.

User Action

Refer to the error information and check the cause. Remove the cause of the error and then execute again.

[oracle.toplink.essentials.exceptions.QueryException](#)

Explanation

Analysis of the JPQL query statement failed.

User Action

Refer to the error information and check the cause. Remove the cause of the error and then execute again.

[oracle.toplink.essentials.exceptions.StaticWeaveException](#)

Explanation

An error occurred during preparatory processing of an Entity class for which FetchType.LAZY is defined for the relationship.

User Action

Refer to the error information and check the cause. Remove the cause of the error and then execute again.

[oracle.toplink.essentials.exceptions.TransactionException](#)

Explanation

An error occurred during a transaction.

User Action

Refer to the error information and check the cause. Remove the cause of the error and then execute again.

[oracle.toplink.essentials.exceptions.ValidationException](#)

Explanation

Part of the JPA execution environment or the database environment is inappropriate. Alternatively, a persistence field does not conform to the type supported by the Interstage persistence provider.

User Action

Refer to the error information and check the cause. Remove the cause of the error and then execute again.

If the error number is 7027, check whether the database sequence used by the primary key value automatic generation function has been created.

If the error number is 7212, check whether TemporalType is defined in the java.util.Date type or the java.util.Calendar type persistence field.

If the error number is 7231, a uniqueness restraint infringement has occurred. Therefore, check the table records and the entity value that the application attempted to insert.

[oracle.toplink.essentials.exceptions.XMLParseException](#)

Explanation

An error occurred while reading the deployment descriptor file (persistence.xml or mapping file).

User Action

Refer to the error information and check the cause. Remove the cause of the error and then execute again.

[oracle.toplink.essentials.platform.xml.XMLPlatformException](#)

Explanation

An error occurred during parser processing for the deployment descriptor file (persistence.xml or mapping file).

User Action

Refer to the error information and check the cause. Remove the cause of the error and then execute again.

13.65.6 Exception information during IIOP communication

The section explains the exception information that is output when an error occurs in IIOP communication. Check the message information in the output exception and the meanings below and take the required action.

Exception	Meaning
BAD_CONTEXT	A context object search failed.
BAD_INV_ORDER	A routine call is not normal.
BAD_OPERATION	An operation is incorrect. Note: Also refer to " Minor codes for BAD_OPERATION "
BAD_PARAM	A parameter is incorrect.
BAD_QOS	The requested QOS is not supported.
BAD_TYPECODE	A TypeCode is incorrect.
CODESET_INCOMPATIBLE	The code cannot be converted.
COMM_FAILURE	Communication failed.

Exception	Meaning
	<p>If the IIOP communication load balancing function linked to IPCOM is used, check whether a virtual IP address is specified in the IIOP listener network address setting. In this case, the virtual host name must be specified.</p> <p>Note: Also refer to "Minor codes for COMM_FAILURE".</p>
CONTEXT	A context object search failed.
DATA_CONVERSION	Code conversion failed.
FREE_MEM	Memory cannot be released.
IMP_LIMIT	The implementation limit is reached.
INITIALIZE	Initialization processing has not been performed.
INTERNAL	An IIOP service internal error occurred.
INTF_REPOS	<p>An error occurred during access to the interface repository.</p> <p>This does not occur in Java EE.</p>
INV_FLAG	A flag specification is incorrect.
INV_IDENT	The identifier syntax is invalid.
INV_OBJREF	An object reference is incorrect.
INV_POLICY	The policy is invalid.
MARSHAL	<p>An error occurred during marshalling of parameters and return values.</p> <p>Note: Also refer to "Minor codes for MARSHAL".</p>
NO_IMPLEMENT	The operation is not implemented.
NO_MEMORY	Dynamic memory acquisition failed.
NO_PERMISSION	<p>There is no permission to execute the method.</p> <p>If IIOP authentication is used, check whether Heartbeat is enabled in the IJServer cluster settings.</p>
NO_RESOURCES	The request cannot be executed due to a resource shortage.
NO_RESPONSE	There is no response to the request.
NotFound	<p>Cannot find the server application that corresponds to the specified JNDI name.</p> <p>If <code>javax.naming.NameNotFoundException</code> was output, then refer to "13.65.4 Exception information starting with java or javax" and take action.</p>
OBJ_ADAPTER	<p>This is an error related to object implementation.</p> <p>If the EJB dispatch feature load balancer is used, the EJB dispatcher will receive EJB application requests. This error is output if there are no dispatch target server instances, however.</p> <p>If the object reference cache feature is used, the Enterprise JavaBeans which is referenced may have been redeployed or undeployed. Restart the server instance (or client application) for the object reference which was cached.</p> <p>Note: Refer also to "Minor codes for OBJ_ADAPTER".</p>
OBJECT_NOT_EXIST	<p>The object does not exist. Possible causes are as follows:</p> <p>If the IIOP communication load balancing function linked to IPCOM is used, check whether a unique-id (other than 0) is specified in the Interstage deployment descriptor file of the module being deployed.</p> <ul style="list-style-type: none"> - An Enterprise JavaBean which was already removed using the remove method is being called again.

Exception	Meaning
	<ul style="list-style-type: none"> - An Enterprise JavaBean is being called for which the 'undeploy', 'undeploy application', or 'change active state of application to disabled' operation was executed. - An Enterprise JavaBean is being called for which server instance stop processing is in progress. - An Enterprise JavaBean which is being undeployed or redeployed is being called.
PERSIST_STORE	The persistence store failed.
REBIND	A condition that contravenes the policy set in the RebindPolicy occurred.
TIMEOUT	A timeout occurred.
TRANSIENT	This is a temporary error.
UNKNOWN	An IIOP service initialization error or an unknown exception occurred.

Minor codes for BAD_OPERATION

Exception information like that shown below might be output if a BAD_OPERATION system exception occurs.

```
org.omg.CORBA.BAD_OPERATION: vmcid: SUN minor code: 232 completed: No
```

Check the vmcid and minor code values in the output exception, check the meanings below, and take the required action.

vmcid	minor code	Meaning	Cause and user action
SUN	232	Method calling was performed using a remote interface not implemented by the server application.	Check whether the client application and the server application use the same remote interface.
	246		
	259	An exception occurred in property parse processing.	Refer to the message which was output immediately before and take action.
	1204	A problem was detected in the received request content.	The object reference held by the sender might be illegal. Check whether the IISServer cluster or instance was restarted during processing, or whether the object reference used was not obtained from a JavaEE application.
1405	Failed to call the stub which implements the remote interface in RMI-IIOP.	Security Manager has been activated in the application client container. Security Manager is not supported in the application client container, therefore Security Manager should not be activated.	

Refer to "IOP01210200 messages" for details of BAD_OPERATION system exceptions and the required user action. The minor code corresponds to the XXX part in IOP01210XXX.

Minor codes for COMM_FAILURE

Exception information like that shown below might be output if a COMM_FAILURE system exception occurs.

```
org.omg.CORBA.COMM_FAILURE: vmcid: SUN minor code: 219 completed: Maybe
```

Check the vmcid and minor code values in the output exception, check the meanings below, and take the required action.

vmcid	minor code	Meaning	Cause and user action
SUN	201	The connection cannot be created.	Check for errors in the specified host name and port number.

vmcid	minor code	Meaning	Cause and user action
			Check whether the connection destination IJServer cluster is stopped.
	203	Data send processing is stopped because the connection was disconnected.	The connection might have been disconnected for some reason. Check messages posted to the communication destination and remove the cause of the exception.
	208	Connection disconnection was detected.	Communication from the server might have been disconnected due to the limit for the number of connections accepted by the server being exceeded. Revise the value for the total number of ORB connections. Check whether the connection destination Java EE application or the machine is down. The connection may have been closed because of a data inconsistency which was caused by the IOP communication socket send/receive wait time being exceeded. Check the message that was output at the same time, and the message that was notified to the connection destination, to remove the cause of the exception.
	210	The message could not be received correctly in the connection destination.	An error was discovered in the data received in the connection destination. If the IOP communication load balancing feature was used for linkage with IPCOM, check whether an error was discovered in IPCOM. Additionally, check whether there is a problem in the network environment.
	211	In processing to receive data, data reading could not be completed.	The connection might have been closed for some reason. Check the message that was output at the same time, or the message that was notified to the communication destination, and remove the cause of the exception.
	216	Connection to the specified IP address and port number failed.	Connection failed to the specified address (IOP listener network address and port number). The port might be busy, or allocation to the IP address might have failed. Check the IOP listener network address (machine name or IP address) and the IOP listener port.
	218	An I/O exception occurred in accept processing.	Identify the cause of the error from the I/O exception content which was output at the same time, then take action to remove the cause of the error.
	219	A timeout occurred for the server method recovery time.	If the server-side processing takes too long or is hung, revise the server-side processing. Alternatively, revise the value of the com.sun.corba.ee.transport.ORBWaitForResponseTimeout property. For details on this property, refer to "Time Monitoring Features that can be Used in IOP Communication", "IOP Communication Server Method Recovery Time Monitoring Feature" in the "Functionality Provided in the Java EE Application" chapter.
	220	A timeout occurred during connection processing.	The connection failed for some reason. Follow the action advised in the message that was notified immediately before to remove the cause of the exception.

vmcid	minor code	Meaning	Cause and user action
	225	A timeout occurred in the processing to write to the socket.	Revise the value of the com.sun.corba.ee.transport.ORBTCPTimeouts property. For details on this property, refer to "Time Monitoring Features that can be Used in IIOP Communication", "IIOP Communication Socket Send/Receive Wait Time Monitoring Feature" in the "Functionality Provided in the Java EE Application" chapter.
	227	An unexpected exception occurred during the processing to write to the socket.	The connection might have been disconnected for some reason. Check messages posted to the communication destination and remove the cause of the exception.
	228	An exception occurred in data accept processing.	Follow the action advised in the message that was output at the same time to remove the cause of the exception.
	229	A timeout occurred in the processing to read from the socket.	Revise the value of the com.sun.corba.ee.transport.ORBTCPTimeouts property. For details on this property, refer to "Time Monitoring Features that can be Used in IIOP Communication", "IIOP Communication Socket Send/Receive Wait Time Monitoring Feature" in the "Functionality Provided in the Java EE Application" chapter.
	233	The receive data size has exceeded the maximum receive buffer size, therefore the data cannot be received.	Tune so that the maximum message fragment size is less than the receive buffer size.
	234	While receiving data, data reading could not be completed.	The connection might have been closed for some reason. Check the message that was output at the same time, or the message that was notified to the communication destination, and remove the cause of the exception.
	801	An I/O exception occurred when the cancel request message was sent.	Identify the cause of the error from the I/O exception content which was output at the same time, then take action to remove the cause of the error.

Refer to "IOP00410200 messages" for details of COMM_FAILURE system exceptions and the required user action. The minor code corresponds to the XXX part in IOP00410XXX.

Minor codes for MARSHAL

Exception information like that shown below might be output if a MARSHAL system exception occurs.

```
org.omg.CORBA.MARSHAL: vmcid: SUN minor code:211 completed: Maybe
```

Check the vmcid and minor code values in the output exception, check the meanings below, and take the required action.

vmcid	minor code	Meaning	Cause and user action
SUN	211	An exception was detected during data reception.	The line might have been disconnected during data reception. Check for problems in the network environment, check whether the connection destination is down, and refer to the value of the com.sun.corba.ee.transport.ORBTCPTimeouts property to check whether a timeout has occurred. For details on this property, refer to "Time Monitoring Features that can be Used in IIOP Communication", "IIOP Communication Socket Send/Receive Wait Time Monitoring Feature" in the "Functionality Provided in the Java EE Application" chapter.

vmcid	minor code	Meaning	Cause and user action
			There might be an incompatibility in the transfer data at the send/receive side. Check the transfer data contents and the serialVersionUID variable value.

Refer to "IOP00810200 messages" for details of MARSHAL system exceptions and the required user action. The minor code corresponds to the XXX part in IOP00810XXX.

Minor codes for OBJ_ADAPTER

If an OBJ_ADAPTER system exception has occurred, the exception information may be output as follows:

```
org.omg.CORBA.OBJ_ADAPTER: vmcid: SUN minor code: 999 completed: No
```

Check the vmcid and minor code values, and their meanings, from the exceptions which are output, then take action.

vmcid	minor code	Meaning	Cause and user action
SUN	999	An EJB application which is not a target of EJB dispatcher dispatch, or which is not running, was called.	Refer to User Action of the "EJBD0005" message , then take action.

Note

In the exception information that was output in IIOP communication, a string starting with "CORBA" may be output after the exception information that starts with java or javax.

In the following example, a COMM_FAILURE system exception has occurred, and this information was included in java.rmi.MarshalException and then notified to the application.

```
java.rmi.MarshalException:CORBA COMM_FAILURE 1398079696 Maybe
```

The method to confirm the output of a string starting with "CORBA", as shown in the above example, is explained below.

How to check

1. Convert the Dec (1398079696), which is included in the string starting with "CORBA", to Hex (535500D0).
2. The upper 5 digits (53550) of the converted value (535500D0) change to "vmcid".
When vmcid is "53550", this stands for "SUN".
3. For the lower 3 digits (0D0) of the converted value (535500D0), the "208" value which was converted to Dec changes to minor code.
4. Check the meaning of the "COMM_FAILURE" exception which is output after "CORBA". In the "[Minor codes for COMM_FAILURE](#)" table, check the content for vmcid: SUN, and minor code: 208, then take action to remove the cause of the error.

Chapter 14 Troubleshooting

This chapter explains how to solve problems in Java EE application operations.

14.1 Command Execution Errors

The recommended remedial actions for the following situations that may occur when a command is executed are explained below:

- [Password Input is Requested when the Command is Executed](#)
- [Output of an Error Message](#)
- [Output of an Exception Message](#)
- [A Delay in the Command Return](#)
- [An Unintended Value is Saved when the Definition Item is Updated](#)

Password Input is Requested when the Command is Executed

To omit input of the password when the command is executed, refer to "asadmin", "login Subcommand" in the "Java EE Operation Commands" chapter.

Output of an Error Message

If an error occurs when a command is executed, an error message is output on the terminal that was used to execute the command. Refer to the "Java EE Messages" chapter for information on corrective action for errors.

Output of an Exception Message

If an exception message is output when the command is executed, refer to the following and take action.

java.lang.OutOfMemoryError

There may be insufficient memory. Refer to the following for the appropriate corrective action.

- [Interstage Application Server Tuning Guide](#)
 - [Enhanced Message Output Function for Insufficient Memory Size Events](#)
 - [When java.lang.OutOfMemoryError is Thrown](#)

An example of the java.lang.OutOfMemoryError output is as follows:

```
Exception in thread "RMI
RenewClean-
[192.168.0.1:42964,com.sun.appserv.management.client.AdminRMISSLClientSocketFactory@4f2ec]"
java.lang.OutOfMemoryError: Java heap space
at java.io.ByteArrayOutputStream.<init>(ByteArrayOutputStream.java:59)
The memory was exhausted on Java heap space. : requested 48 bytes
  Java heap size / max Java heap size = 59703288 / 67108864
  Java perm size / max Java perm size = 12748800 / 67108864
```

java.net.SocketTimeoutException

Communication with the Interstage Java EE DAS service, Interstage Java EE Node Agent service, or IJServer cluster may have failed because of a high load.

Check the system load status and reexecute the command if there are available system resources.

A Delay in the Command Return

If the command returns abnormally following a long period of time since the start of processing, it is possible that the connection to the Interstage Java EE DAS service is not possible because of multiple operations being executed at the same time.

In this case, execution of the command will result in an error, however there is no impact on Java EE definitions/operations. Check that multiple operations were not executed at the same time and reexecute the command.

An Unintended Value is Saved when the Definition Item is Updated

Another user might have performed an operation at the same time using either the `asadmin` command or the Interstage Java EE Admin Console, causing the specified value to be overwritten. If this is the case, then perform the operation again.

14.1.1 Abnormalities Relating to the `init` Command

This section explains how to proceed when an error occurs when executing the `init` command.

Failure Upon Execution

In case of error during execution, the processes listed below may remain active. If that is the case, stop the processes and then reexecute the `init` command.

- Message broker

- How to check:

Windows32/64

Check whether the `imqbrokervc.exe` image exists in the list of Task Manager processes.

Solaris32/64

Execute the command below to check whether an `imqbrokerd` command process exists.

For a global zone:

```
ps -efz global | grep imqbrokerd
```

For a non-global zone:

```
ps -ef | grep imqbrokerd
```

Linux32/64

Execute the command below to check whether an `imqbrokerd` command process exists.

```
ps -ef | grep imqbrokerd
```

- How to stop it:

Refer to "[14.8 Abnormalities in JMS Development/Operations](#)", "[Cannot Stop the Message Broker](#)".

- Java DB (client/server environment)

- How to stop it:

Execute the `asadmin` command with the `stop-database` subcommand, specifying in the `--dbport` option the Java DB port number set in `derby.log` stored under the Java DB system directory. For details, refer to "`asadmin`", "`stop-database` Subcommand" in the "Java EE Operation Commands" chapter.

If the problem persists even after the procedure above has been followed, then restart the system and then reexecute `init`.

14.2 Operational Errors

This section explains problems that might occur during operation.

14.2.1 Operating Environment-Related Errors

Recommended medial action for the following errors in the Java EE application operating environment are explained below.

- [IJServer Cluster Start up Errors](#)

- Server Instance Abnormal End
- If obtaining Server Instance Status Takes too Long
- Interstage Java EE Node Agent Start up Errors
- Interstage Java EE Node Agent Abnormal End
- Interstage Java EE Node Agent Service Process Recovery Procedure
- Interstage Java EE DAS Service Start Up Errors
- Interstage Java EE DAS Service Abnormal End
- When the Interstage Java EE DAS Service does not Receive Operations
- When the Interstage Java EE DAS Service Get Status Command Return Takes a Long Time
- Interstage Java EE DAS Service Process Recovery Procedure
- Abnormalities in Application Operations in the Interstage Java EE DAS Service

IJServer Cluster Start up Errors

If the IJServer cluster startup fails, check whether an error message was output to the following log, and refer to the "Java EE Messages" chapter to investigate the cause of the failure.

- Event log (Windows)/system log (Solaris/Linux)
- Server log
- Java VM log

If the startup wait time for the IJServer cluster is exceeded due to a delay or hang up with its startup process, the full thread dump of the Java VM process is output to the Java VM log. Refer to the full thread dump to check whether an application has caused the delay or hang-up.

If the startup fails because the communication port cannot be obtained, refer to "Port Tuning" in the "Java EE Function Tuning" chapter and tune the port number.

If the cause cannot be identified from the information in the log, use the `iscollectinfo` command to collect data and then contact a Systems Engineer.

Server Instance Abnormal End

If the IJServer cluster process ends abnormally, check whether an error message was output to the following log, and refer to the "Java EE Messages" chapter to investigate the cause.

Operation can resume using the process automatic restart function.

- Event log (Windows)/system log (Solaris/Linux)
- Server log
- Java VM log

A JDK/JRE error message may be output to the Java VM log and server log. Refer to the following to investigate these errors.

- "JDK/JRE Tuning" chapter of the Tuning Guide

If the cause cannot be identified from the information in the log, use the `iscollectinfo` command to collect data and then contact a Systems Engineer.

If the IJServer cluster process ends abnormally during business operations, processing can continue with the process automatic restart functionality. For details, refer to "The life-and-death Monitoring of the Java VM Process" in the "Functionality Provided in the Java EE Application" chapter.

If obtaining Server Instance Status Takes too Long

If a server instance reaches a high-load state due to insufficient memory then it might take a while to obtain the server instance status using the `asadmin` command `list-instances` subcommand, and "not running" might be displayed as a result.

In this case, wait for a few moment, then reexecute the command.

If you want to stop a high-load state server instance, then stop the IJServer cluster or server instance by force.

Interstage Java EE Node Agent Start up Errors

If the startup process for the Interstage Java EE Node Agent service fails, check whether an error message was output to the following log, and refer to the "Java EE Messages" chapter to investigate the cause of the failure.

- Event log (Windows)/system log (Solaris/Linux)
- Server log

Interstage Java EE Node Agent Abnormal End

If the Interstage Java EE Node Agent service ends abnormally, use the iscollectinfo command to collect data, and then contact a Systems Engineer.

The following functions will not work if an abnormal end occurs:

- IJServer cluster Java VM process life-and-death monitoring
- Automatic restart, in the case of an IJServer cluster process error
- Monitoring the maximum application processing time (*1)
- Control when the Java heap or Permanent generation space is insufficient
- Output of information to the Java VM log (jvm.log)
- Displaying the operational status of the IJServer cluster

*1) In the "Control when there is insufficient Java heap/Permanent generation space" function, when the Interstage Java EE Node Agent service ends abnormally, the following behavior will occur depending on the control method that was set.

- When "Restart process" is used
The process cannot be restarted, therefore it crashes.
- When "Return java.lang.OutOfMemoryError to the application" is used
There is no behavioral impact.
java.lang.OutOfMemoryError is returned to the application.

There is no impact on application communications.

The recovery procedure is as follows.

1. Check the server instance during operations using the ijadmin command list-instances subcommand.
2. Execute the command below for the server instance that was started.

Windows32/64

```
[Java EE common directory]\nodeagents\ijna\[server instance name]\bin\stopserv
```

Solaris32/64 Linux32/64

```
[Java EE common directory]/nodeagents/ijna/[server instance name]/bin/stopserv
```

3. Stop all the server instances as follows:

Windows32/64

Use Task Manager.

Solaris32/64 Linux32/64

Issue the kill command.

4. Restart the IJServer cluster.

Note

If the Interstage Java EE Node Agent service was started without performing the recovery procedure:

- Server instances for which recovery was not performed will not work correctly - performing the recovery procedure to resume the normal status.
- It is possible to determine which server instances are targets of recovery by comparing the Interstage Java EE Node Agent service and server instance uptimes.

The shorter the server instance uptime, the more likely it is to be a target of recovery:

- To determine the Interstage Java EE Node Agent service uptime, refer to the time for the ijna10000 message output to the system/event log.
- To determine the server instance uptime, refer to the time for SERVER1007 output to the server log.

Interstage Java EE Node Agent Service Process Recovery Procedure

Use the following procedure to recover the Interstage Java EE Node Agent service process:

1. Refer to the following files, and check the Interstage Java EE Node Agent service process ID.

Windows32/64

```
[Java EE common directory]\nodeagents\ijna\agent\config\.__com_sun_appserv_pid
```

Solaris32/64 **Linux32/64**

```
[Java EE common directory]/nodeagents/ijna/agent/config/.__com_sun_appserv_pid
```

Note

If the file does not exist, or the java process does not exist, the process will not exist either.

2. Use the following method to check whether the process for the ID that was checked in 1 exists as the java process.

Windows32/64

Check this using the Windows Task Manager.

Solaris32/64 **Linux32/64**

Check this using the ps command.

3. Use the following method to recover the process for the ID that was checked in 1.

Windows32/64

End the process using the Windows Task Manager.

Solaris32/64 **Linux32/64**

Delete the process using the kill command.

If the server instance process exists, refer to "[Interstage Java EE Node Agent Abnormal End](#)" as well as performing the above procedure. Also, recover the server instance process.

Interstage Java EE DAS Service Start Up Errors

If the start up process fails for the Interstage Java EE DAS service, check whether an error message was output to the following log, and refer to the "Java EE Messages" chapter to investigate the cause of the failure.

- Event log (Windows)/system log (Solaris/Linux)
- Interstage Java EE DAS service server logs

Windows32/64

If "java.lang.NoClassDefFoundError" is output to the following log file, the PATH environment variable may contain double quotes (").

```
[IJServer cluster log output dir]\start.log
```

Note

The default IJServer cluster log output directory is

```
[Java EE common directory]\nodeagents\ijna\agent\logs
```

If the PATH environment variable contains double quotes, the Interstage Java EE DAS service cannot start. Check the PATH environment variable. If it contains double quotes, delete them.

When the Startup Fails Because the Communication Port Cannot be Obtained

If the startup fails because the communication port cannot be obtained, refer to "Port Tuning" in the "Java EE Function Tuning" chapter and tune the port number.

Note that, if the Interstage Java EE DAS service startup fails because the port number is used by another service/process, stop the service/process that is using the duplicate port number, then start the Interstage Java EE DAS service and change the settings.

When the Startup Fails Because there is Insufficient Memory

If many IJServer clusters and server instances are defined, then the Interstage Java EE DAS service startup may fail due to insufficient memory. In this case, edit domain.xml according to the procedure below:

1) Extend the Java Heap

Extend the Interstage Java EE DAS service Java Heap according to the procedure below.

domain.xml storage folder:

Windows32/64

```
[Java EE common directory]\domains\interstage\config\domain.xml
```

Solaris32/64 **Linux32/64**

```
[Java EE common directory]/domains/interstage/config/domain.xml
```

1. Stop the Interstage Java EE Node Agent service.
2. Stop the Interstage Java EE DAS service.
If normal stop cannot be performed, then restart the system.
3. Increase the Heap size by editing domain.xml.
Open the file using a text editor, then change "-Xmx512m" to "-Xmx1024m".

Elements to be edited:

```
<domain>
  <configs>
    <config dynamic-reconfiguration-enabled="true" name="server-config">
      <java-config>
        <jvm-options>-Xmx512m</jvm-options>
      </java-config>
    </config>
  </configs>
</domain>
```

4. Verify the definition content using the asadmin command verify-domain-xml subcommand.
For details, refer to "asadmin", "verify-domain-xml Subcommand" in the "Java EE Operation Commands" chapter.
5. Start the Interstage Java EE DAS service.
If normal stop could not be performed, then restart the system again.
6. Start the Interstage Java EE Node Agent service.

2) Delete the IJServer Cluster

If the setting for the "heartbeat" cluster definition item is enabled, then it may be possible to reduce Interstage Java EE DAS service memory usage by deleting predefined IJServer clusters.

Before performing this task, it is recommended that you back up the IJServer cluster deployment resources and domain.xml/workers2.properties first (for details, refer to "Backing up and Restoring Resources" in the "Maintenance (Resource Backup/migration of Resources to Another Server)" chapter).

To calculate the number of IJServer clusters that must be deleted, refer to "Required Resources", "Memory Usage", "Physical Memory Usage" in the "Java EE Function Tuning" chapter. To delete the cluster, follow the procedure below.

domain.xml storage folder

Windows32/64

```
[Java EE common directory]\domains\interstage\config\domain.xml
```

Solaris32/64 Linux32/64

```
[Java EE common directory]/domains/interstage/config/domain.xml
```

workers2.properties storage folder

Windows32/64

```
C:\Interstage\F3FMjs5\conf\jk2\[Web server name]\workers2.properties
```

Solaris32/64 Linux32/64

```
/opt/FJSVjs5/conf/jk2/[Web server name]/workers2.properties
```

1. Stop the Interstage Java EE Node Agent service.
If normal stop cannot be performed, then stop the process by force.
2. Stop the Interstage Java EE DAS service.
If normal stop cannot be performed, then stop the process by force.
3. Stop the web server.
For details, refer to the Interstage HTTP Server Operator's Guide.
4. Stop the Interstage Management Console.
For details, refer to the Interstage Application Server Operator's Guide.
5. Edit domain.xml as described below.

Disable heartbeat

Set "heartbeat-enabled" of the "cluster" element to "false" for all IJServer clusters.

```
<cluster config-ref="{IJServer name}-config"  
heartbeat-address="{heartbeat address}"  
heartbeat-enabled="false"  
heartbeat-port="{heartbeat port}" name="{IJServer cluster name}">  
~  
</cluster>
```

6. Verify the definition content using the asadmin command verify-domain-xml subcommand.
For details, refer to "asadmin", "verify-domain-xml Subcommand" in the "Java EE Operation Commands" chapter.
7. Start the web server.
For details, refer to the Interstage HTTP Server Operator's Guide.
8. Start the Interstage Management Console.
For details, refer to the Interstage Application Server Operator's Guide.
9. Start the Interstage Java EE DAS service.
10. Delete the deletion target IJServer clusters and server instances using either the asadmin command or the GUI.

11. Start the Interstage Java EE Node Agent service.

If the cause of the error cannot be identified based on the output to the various logs, then collect the necessary data using the `iscollectinfo` command and contact a Systems Engineer. For details on this command, refer to the "Maintenance Commands" chapter of the Reference Manual (Command Edition).

Startup Failure Because the Java EE Common Directory Cannot be Referenced

The Interstage Java EE DAS service will fail to start if the Java EE common directory cannot be referenced.

When the Java EE common directory is deployed to a shared disk for cluster service linkage, start up the product from the active node in which the Java EE common directory can be referenced.

Interstage Java EE DAS Service Abnormal End

If the Interstage Java EE DAS service ends abnormally, an error message is notified to the system log/event log. Use the `iscollectinfo` command to collect data and then contact a Systems Engineer.

The following cannot be used if an abnormal end occurs:

- Interstage Java EE Admin Console
- The `asadmin` command

Starting the Interstage Java EE DAS service will rectify the situation:

When the Interstage Java EE DAS Service does not Receive Operations

The Interstage Java EE DAS service may not be able to receive operations because of insufficient memory. Note that, in this case, the `ijdasstat` command may sometimes display "unknown" even if the Interstage Java EE DAS service is running.

Refer to the Interstage Java EE DAS service server log and check whether an error message was output showing that there is insufficient memory. If there is an "insufficient memory" error message, refer to "[Interstage Java EE DAS Service Process Recovery Procedure](#)", recover the process, and then tune the heap size.

When the Interstage Java EE DAS Service Get Status Command Return Takes a Long Time

If the Interstage Java EE DAS service is in a high-load state because of insufficient memory, the Interstage Java EE DAS service "get status" (`ijdasstat`) command return may take a long time, and "unknown" may be displayed as the result. If this is the case, wait for a while, then reexecute the command.

Note that, to stop an Interstage Java EE DAS service that is in a high-load state, refer to "[Interstage Java EE DAS Service Process Recovery Procedure](#)", then recover the process.

Interstage Java EE DAS Service Process Recovery Procedure

Use the following procedure to recover the Interstage Java EE DAS service process:

1. Refer to the following files, and check the Interstage Java EE DAS service process ID.

Windows32/64

```
[Java EE common directory]\domains\interstage\config\.__com_sun_appserv_pid
```

Solaris32/64 **Linux32/64**

```
[Java EE common directory]/domains/interstage/config/.__com_sun_appserv_pid
```



.....
If the file does not exist, or the java process does not exist, the process will not exist either.
.....

2. Use the following method to check whether the process for the ID that was checked in 1 exists as the java process.

Windows32/64

Check this using the Windows Task Manager.

Solaris32/64 Linux32/64

Check this using the ps command.

3. Use the following method to recover the process for the ID that was checked in 1.

Windows32/64

End the process using the Windows Task Manager.

Solaris32/64 Linux32/64

Delete the process using the kill command.

Abnormalities in Application Operations in the Interstage Java EE DAS Service

For details, refer to "[14.2.3 Application Operational Errors](#)".

14.2.2 Action for Garbled Characters in the Java EE Application

Corrective action for garbled characters and the code conversion settings that will affect them are explained below.

Identify and Display the Garbled Characters

Identify and display garbled characters as follows.

- Separate garbled characters and non-garbled characters.
- Identify their location.
- Use hexadecimal to display the garbled characters.

Points to Check

Check the following.

- **Has the required package been installed in the locale?**

Check and install the required package in the local if necessary.

- **Are the locale settings correct?**

If the locale is not set, set it.

For more details, refer to "[Locale Settings](#)".

- **Do the garbled characters contain the special character (tilde) "~"?**

There may be garbled characters because the conversion rules for converting Japanese code (JIS, EUC, Shift JIS) are different to the rules for converting Unicode. Standardize the code type. If the code type cannot be standardized, use a filter immediately before converting from Unicode in the Java EE application.

For details on characters for which the conversion rules are different for conversion to Unicode, refer to "[Garbled Special Characters](#)".

- **Has "JISAutoDetect" been used?**

"JISAutoDetect" (automatic conversion) may not correctly recognize code types such as short Japanese character strings, therefore the conversion may not be successful. For example, when Japanese EUC characters are falsely recognized as Shift-JIS half-width katakana characters, the character string is converted as an indecipherable string and will contain those half-width katakana characters. We recommend that "JISAutoDetect" is not used unless it is absolutely necessary. If it is used, the above problem should be taken into consideration.

- **Has "Shift_JIS" been used?**

The handling of the "Shift_JIS" encoding name has changed from JDK/JRE 1.4.1. Therefore, there may be garbled characters when the Java EE application is run in a version of JDK/JRE that is 1.4.0 and earlier.

To run Java EE applications in the same way as in JDK/JRE 1.3, specify "windows-31j".

- Has the code conversion function been set correctly?

If a test of I/O data is performed and the result is that the code has not converted correctly, check the conversion settings and change if necessary.

For web applications, also refer to "Character Codes" in "Notes About Web Applications" section in the "Release Information" chapter.

Locale Settings

Tools such as Java VM, javac, and native2ascii run based on the locale settings, as do Java EE applications.



The locale is defined by grouping various attributes that depend on shared languages and cultures.

Set the locale using the following procedures.

Windows32/64

The locale is set in [Control Panel], [Regional Options].



The above is for Windows Server(R) 2003 and this may differ in other versions.

Solaris32/64 Linux32/64

The locale is set in the LANG environment variable.

Code type	Locale
EUC	Ja ja_JP.eucJP
Shift JIS	ja.JP.PCK
UTF-8	ja_JP.UTF-8

Garbled Special Characters

The following table shows conversion rules for characters that are converted to Unicode.

JIS X 0208		Conversion to Unicode	
33 ("~")	EUC :a1c1	Conversion on Solaris	U+301c (WAVE DASH)
	SJIS:8160	Conversion on Windows(R)	U+ff5e (FULLWIDTH TILDE)
01-34 (" ")	EUC :a1c2	Conversion on Solaris	U+2016 (DOUBLE VERTICAL LINE)
	SJIS:8161	Conversion on Windows(R)	U+2225 (PARALLEL TO)
01-61 ("-")	EUC :a1dd	Conversion on Solaris	U+2212 (MINUS SIGN)
	SJIS:817c	Conversion on Windows(R)	U+ff0d (FULLWIDTH HYPHEN-MINUS)
01-81 ("¢")	EUC :a1f1	Conversion on Solaris	U+00a2 (CENT SIGN)
	SJIS:8191	Conversion on Windows(R)	U+ffe0 (FULLWIDTH CENT SIGN)
01-82 ("£")	EUC :a1f2	Conversion on Solaris	U+00a3 (POUND SIGN)
	SJIS:8192	Conversion on Windows(R)	U+ffe1 (FULLWIDTH POUND SIGN)
02-44 ("")	EUC :a2cc	Conversion on Solaris	U+00ac (NOT SIGN)
	SJIS:81ca	Conversion on Windows(R)	U+ffe2 (FULLWIDTH NOT SIGN)

14.2.3 Application Operational Errors

Recommended remedial actions for the following situations are explained below:

- [If an Error Occurs in the Application when the IJServer Cluster Starts up or is Running](#)
- [If APPDEP1010 is Output when the Application is Redeployed or Undeployed](#)
- [If a Delay Occurs when there is no Response from the Application During Operation](#)
- [If the Class File or Resource File Reference in the Application Fails](#)

If an Error Occurs in the Application when the IJServer Cluster Starts up or is Running

If an error occurs in the application when the IJServer cluster starts up or is running, it means the application may not conform to the rules of Java EE.

To check this, redeploy the application with verification enabled.

If APPDEP1010 is Output when the Application is Redeployed or Undeployed

If the following detailed messages are output in the APPDEP1010 when the application is redeployed or undeployed, an inconsistency may have occurred in the IJServer cluster internal information:

- Failure removing policy context directory: Directory
- Failure removing policy file: File

If this problem occurs, perform a recovery according to the following procedure:

1. Deploy the application
2. Undeploy the application
3. For redeployment: Deploy the application

If a Delay Occurs when there is no Response from the Application During Operation

If the default thread pool is used instead of thread pools being set for each Enterprise Bean, there may be no response or a delay in processing when many EJB applications are called. Refer to "Thread Pooling" in the "Java EE Function Tuning" chapter and set thread pools for each Enterprise Bean.

If the Class File or Resource File Reference in the Application Fails

- It may not be possible to reference class or resource files from the class loader used to load the application:
For details on how to check, refer to "Class Loader" in the "Functionality Provided in the Java EE Application" chapter. If they cannot be referenced this way, then reconfigure appropriately.
- If the application is big, then there may not have enough memory for application extraction processing.
Tune the process that extracts the application resources (for details, refer to "Tuning for Deployment" in the "Java EE Function Tuning" chapter).

14.2.4 Dependency Injection Failure Errors

If Dependency Injection fails, the following types of exception will occur. If this happens, refer to the information in the exception stack trace for the appropriate action. The error details in [Caused by:] of the stack trace is the exception that will be the primary cause.

From the following exception information, identify the object in which the error occurred, identify the cause in the exception information that was output to [Caused by:] of the stack trace, and then take action. For details on primary cause exception information, refer to "Exception Information" for the appropriate action.

- [Exception for @EJB Dependency Injection failure](#)
- [Exception for @Resource Dependency Injection failure](#)
- [Exception for @WebServiceRef Dependency Injection Failure](#)

Exception for @EJB Dependency Injection failure

com.sun.enterprise.InjectionException: Exception attempting to inject Resolved Ejb-Ref {0}/{1}@jndi: {2} -> {3} into class {0}

[Variable information]

- {0}: Class name. This is the name of the class for which the object to be injected is the target.
- {1}: Field name. This is the name of the field that is used to inject the object.
- {2}: JNDI name. This is the JNDI name of the object that is injected.
- {3}: Enterprise Bean name. This is the Enterprise Bean name of the object that is injected.

[Output example]

```
com.sun.enterprise.InjectionException: Exception attempting to inject Resolved Ejb-Ref com.mycompany.jndi.CallerClass/remote@jndi: CallerEJB - > CallerBean into class com.mycompany.jndi.CallerClass
```

Exception for @Resource Dependency Injection failure

com.sun.enterprise.InjectionException: Exception attempting to inject Resolved Res-Ref-Env-Property {0}/{1}@{2}@{3}

[Variable information]

- {0}: Class name. This is the name of the class for which the object to be injected is the target.
- {1}: Field name. This is the name of the field that is used to inject the object.
- {2}: Field type name. This is the name of the field type that is used to inject the object.
- {3}: Other attribute information.

[Output example]

```
com.sun.enterprise.InjectionException: Exception attempting to inject Res-Ref-Env-Property: com.mycompany.jndi.CallerClass/ref@javax.sql.DataSource@ resolved as: jndi: jndiName@res principal: null@mail: null
```

Exception for @WebServiceRef Dependency Injection Failure

com.sun.enterprise.InjectionException?: Exception attempting to inject Env-Prop: {0}/{1}@Field-Injectable Resource. Class name = {0} Field name={1}@javax.jws.WebServiceRef@@@ into class {0}

[Variable information]

- {0}: Class name. This is the name of the class for which the object to be injected is the target.
- {1}: Field name. This is the name of the field that is used to inject the object.

[Output example]

```
com.sun.enterprise.InjectionException?: Exception attempting to inject Env-Prop: client.JAXWSClient/service@Field-Injectable Resource. Class name = client.JAXWSClient Field name=service@javax.jws.WebServiceRef@@@ into class client.JAXWSClient
```

14.2.5 Nonpaged Pool Leaks in Windows Server(R) 2003

If a web application is run in Windows Server(R) 2003, a nonpaged pool area leak may occur in the IIServer cluster process in accordance with request processing.

Trouble

The following trouble may occur when the leak size of the nonpaged pool is enlarged.

- The following exception is output to the server log and the IIServer cluster or Interstage Management Console behavior becomes unstable, for example request processing/operations are no longer possible:

```
java.net.SocketException: No buffer space available (maximum connections reached?): connect
```

- The following message is output to the event log and the behavior of the OS or applications on the OS becomes unstable, for example processing that uses a network or file operations are no longer possible:

Event ID: 2019

```
The server was unable to allocate from the system nonpaged pool because the pool was empty.
```

Cause

This may be an OS or NIC (Network Interface Card) driver problem.

Recovery Method

Restart the machine.

Method of Action/evasive Action

If an OS patch or latest driver is provided, it may be possible to resolve the problem by applying the latest patch or updating the driver.

If the problem is not resolved, configure the following setting so that the problem is avoided in the operation.

- Enable [Block]
- Set one of the following together with the above.
 - Configure the settings so that the following magnitude correlation is satisfied.
Maximum number of connections to the web server connector web container (*1) < Number of simultaneous web container processes
- *1 If the IJServer cluster is connected to multiple web servers, compare this to the total for the values set for the maximum number of connections to the web container for each web server web server connector.
- Configure the settings so that KeepAlive is not used between the web server connector and the web container.

For details on the settings, refer to:

- Interstage Java EE Admin Console Help
- "Web Container Tuning" in the "Java EE Function Tuning" chapter
- "asadmin", "Subcommands - Category: Referencing/Updating Definition Items" in the "Java EE Operation Commands" chapter
- "Definition Items of the configs.config.http-service" in the "Java EE Operation Commands" chapter

14.2.6 Abnormalities when Large-scale Files are Used

When large-scale files are used, the following message may be output with a processing failure:

```
ERROR: ISJEE_APPDEP3010: file open failure: file = {0}: detail = {1}
```

If the above message is output, organize the files separately and reexecute processing.

14.2.7 When SSL Communication Fails

When SSL communication fails, possible causes and the action that should be taken are explained below.

- **There is an error in the certificate environment**

Check that the certificate has been installed correctly.

- **There is an error in the keystore that is used**

Check that the keystore has been set correctly.

For details on the method that is used to set the keystore, refer to "SSL" in the "Java EE Function Tuning" chapter.

- **There is an error in the site certificate nickname**

Check that the site certificate nickname has been set correctly.

- **An unsupported encryption method was used**

The encryption methods that can be used for SSL communication between the web server connector and the web container are limited. Check that the encryption method is correct.

For details on the encryption methods that can be used, refer to "SSL" in the "Java EE Function Tuning" chapter.

14.2.8 Cannot Connect to Interstage Directory Service

If Interstage Directory Service cannot be connected to when LDAP is used for admin-realm, either due to server or network problem, it will no longer be possible to operate the Interstage Java EE DAS service or Interstage Java EE Node Agent service, nor will login authentication using the Interstage Java EE Admin Console or the `asadmin` command be possible.

In this case, switch the admin-realm authentication method to file realm using the following procedure:

- Stop the Interstage Java EE DAS service, Interstage Java EE Node Agent service, and IJServer cluster.
- Take action according to the description in "[14.2.9 When a Message is Output Stating that Authentication has Failed](#)" > "[When the file realm is used](#)".
- Using the `asadmin` command `change-service-adminuser` subcommand, set the administrator user registered in the file realm as the service administrator user.
- Start the Interstage Java EE DAS service.
- Refer to "Changing the Realm Type" in the "Java EE Function Security" chapter, and configure the settings so that the file realm is used for each service and IJServer cluster.
- Start the Interstage Java EE Node Agent service and IJServer cluster.

14.2.9 When a Message is Output Stating that Authentication has Failed

If any of the following applies, then take action according to the message content that was output:

- Login authentication for the Interstage Java EE Admin Console failed.
- A message is output stating that `asadmin` command login authentication has failed, that the user name or password is invalid, or that there are no privileges.
- When an abnormality occurs in the Interstage Java EE DAS service/Interstage Java EE Node Agent service/IJServer cluster/server instance, a message is output stating that log authentication has failed, that the user name or password is invalid, or that there are no privileges.

Also refer to:

- "Notes on Updating Admin-realm and Administrator User Information" in the "Java EE Function Security" chapter.
- "Notes on Using 'root' in Solaris" in the "Release Information" chapter.

If the problem is not resolved, then the following might have occurred:

- Interstage Directory Service is not running.
In this case, start Interstage Directory Service.
- The administrator user information was updated (add/delete user, update password/group), but not reflected in authentication processing.
- The admin-realm setting was changed, but not reflected in authentication processing.

When this operation is performed, the changes are reflected by restarting the Interstage Java EE DAS service/Interstage Java EE Node Agent service, so the problem might be resolved.

If the admin-realm setting was changed and the Interstage Java EE DAS service/Interstage Java EE Node Agent service/IJServer cluster failed to restart, then the new setting might be invalid.

Take the following action:

- If the Interstage Java EE Node Agent service/IJServer cluster failed to restart:
Correct the admin-realm setting using the `asadmin` command or the Interstage Java EE Admin Console, and then restart the service/cluster.
- If the Interstage Java EE DAS service failed to restart:
For the `auth-realm` tag (name="admin-realm" auth-realm tag) under the `config` tag (name="server-config" config tag) of `domain.xml` (*1), correct the parts in **bold** below and then restart the service.

For details on the admin-realm setting, refer to "Changing the Realm Type" in the "Java EE Function Security" chapter.

*1 The edit target domain.xml is stored in the following location:

Windows32/64

```
[Java EE common directory]\domains\interstage\config
```

Solaris32/64 **Linux32/64**

```
[Java EE common directory]/domains/interstage/config
```

When the OS realm is used

```
<config dynamic-reconfiguration-enabled="true" name="server-config">
....
<security-service activate-default-principal-to-role-mapping="false" anonymous-role="AttributeDeprecated" audit-
enabled="true" audit-modules="default" default-realm="admin-realm" jacc="default">
<!-- All administrative users use this realm by default. -->
<auth-realm classname="com.fujitsu.interstage.javaee.security.auth.realm.os.OSRealm" name="admin-realm">
<property name="jaas-context" value="osRealm"/>
<property name="assign-groups" value="asadmin"/>
</auth-realm>
....
```

When the ldap realm is used

```
<config dynamic-reconfiguration-enabled="true" name="server-config">
....
<security-service activate-default-principal-to-role-mapping="false" anonymous-role="AttributeDeprecated" audit-
enabled="true" audit-modules="default" default-realm="admin-realm" jacc="default">
<!-- All administrative users use this realm by default. -->
<auth-realm classname="com.sun.enterprise.security.auth.realm.ldap.LDAPRealm" name="admin-realm">
<property name="jaas-context" value="ldapRealm"/>
<property name="base-dn" value="ou=interstage,o=fujitsu,dc=com"/>
<property name="directory" value="ldap://localhost:389"/>
<property name="group-search-filter" value="member=%d"/>
....
</auth-realm>
....
```

Change the values for the directory and base-dn properties according to the environment.

Also set group-search-filter, search-filter, group-base-dn, assign-groups, and group-target if necessary.

When the file realm is used

```
<config dynamic-reconfiguration-enabled="true" name="server-config">
....
<security-service activate-default-principal-to-role-mapping="false" anonymous-role="AttributeDeprecated" audit-
enabled="true" audit-modules="default" default-realm="admin-realm" jacc="default">
<!-- All administrative users use this realm by default. -->
<auth-realm classname="com.sun.enterprise.security.auth.realm.file.FileRealm" name="admin-realm">
<property name="jaas-context" value="ldapRealm"/>
<property name="file" value="{com.sun.aas.instanceRoot}/config/admin-keyfile"/>
<property name="assign-groups" value="asadmin"/>
</auth-realm>
....
```

Set the assign-groups property if necessary. Set other values as shown above.

14.2.10 Errors Relating to Additional Properties

When a resource is created using the Interstage Java EE Admin Console or asadmin command with an invalid additional property, the creation might raise an error but create the resource nonetheless. In this case, since the creation did not complete successfully, the resource cannot run normally, so you will have to delete it to restore the environment.

Using the Interstage Java EE Admin Console

- If an error occurs in the creation of the JMS connection factory:
Delete this resource in the [Resources > JMS Resources > Connection Factories] window.
- If an error occurs in the creation of the JavaMail session:
Delete this resource in the [Resources > JavaMail Sessions] window.

Using the asadmin Command

- If an error occurs in the create-custom-resource subcommand:
Delete this resource using the delete-custom-resource subcommand.
- If an error occurs in the create-connector-connection-pool subcommand:
Delete this resource using the delete-connector-connection-pool subcommand.

14.3 Web Application Development Errors

Corrective action for the following errors that could occur when developing or running applications is provided below:

- [JSP Compile Failure](#)
- [Ineffective Updates to JSP or to Files from JSP](#)
- [The Expected Error Page is not Displayed in the Web Browser](#)
- [When Status Code "404 Not Found" is Notified to the Web Browser](#)
- [When Message IJServer12027 is Output to the Web Server Connector Log](#)
- [If Communication with a Web Application Deployed to the Interstage Java EE DAS Service Fails](#)
- [Status Code "400 Bad Request" is Notified to the Web Browser](#)
- [Status Code "500 Internal Server Error" is Notified to the Web Browser](#)

JSP Compile Failure

Possible causes are as follows:

- **JSP contains an error**

The JSP must conform to JSP 2.1 specifications.
Check whether there are errors in the JSP syntax.
For details on the JSP 2.1 syntax, refer to the specifications.

- **The JSP character code was not specified correctly**

Garbled characters may occur when JSP is compiled if the character codes are not specified correctly.
Specify the correct JSP character codes.
For details on how to specify character codes, refer to the JSP 2.1 specifications.

- **The class from the JSP does not exist**

Settings must be configured in the IJServer cluster for whether to include the classes used from JSP in the same application. For details on the IJServer cluster settings, refer to "Setting Classes used by IJServer Cluster" in "Class Loader" section in the "Functionality Provided in the Java EE Application" chapter.

- **A nameless package class was used**

Nameless package classes cannot be used from JSP, therefore you must specify a name for the package.

- **The JSP file size has exceeded the upper limit**

Take the following action if the JSP file is too large.

- Delete any unnecessary descriptions (spaces, comments, carriage returns) between tags (actions and scripting elements).
- Separate the JSP files and then include them dynamically.

- **An operation is being performed in JRE**

A JSP compile cannot be performed in a Java Runtime Environment (JRE).

To perform an operation in JRE, refer to "Functionality Provided in Servlet", "JSP Precompiling" in the "Functionality Provided in the Java EE Application" chapter.

Ineffective Updates to JSP or to Files from JSP

Possible causes are as follows:

- The JSP or the files that are included statically from the JSP were updated during a JSP compile process.
- The JSP or the files that are included statically from the JSP were overwritten or replaced, however the file date predates that of the previous JSP compile date.

Take the following action.

- Update the date of JSP or the files that are included statically from JSP to the current time of the machine.

The Expected Error Page is not Displayed in the Web Browser

For details, refer to "Notes About Web Applications", "Error Page Status Codes", "Web Browser Settings" in the "Release Information" chapter.

When Status Code "404 Not Found" is Notified to the Web Browser

If IJServer cluster resources have been restored or imported, check whether the target resources displayed after executing the `ispprintbackuprsc` command were also restored or imported.

When Message IJServer12027 is Output to the Web Server Connector Log

If the trouble is not resolved after taking the action described in the message explanation, possibilities are as follows:

- The number of requests from the client have exceeded the number of simultaneous web container processes, AND
- Web application processing takes a long time, so the response is delayed.

Take the following action.

- Increase the "Number of Simultaneous Processes" using the "Web Container Tuning" process.
- Enable [Block] of [HTTP service definition items].

If Communication with a Web Application Deployed to the Interstage Java EE DAS Service Fails

The following might have occurred:

- A large number of requests were sent to the deployed web application.

Take the following action:

- Web applications deployed to the Interstage Java EE DAS service should only be executed in the development environment. To send a large number of requests, use an IIServer cluster built in the operating environment.

Status Code "400 Bad Request" is Notified to the Web Browser

Check that the operation mode for access to the web container matches the value set for "requestCheck" of the "HTTP listener" property.

Status Code "500 Internal Server Error" is Notified to the Web Browser

Refer to "Server Error (Status Codes 500 to 599)" in the Messages manual.

14.4 Abnormalities during EJB Application Development/operation

This section explains how to take action to resolve the following problem that occurs at the time of EJB application development or operation.

When the Bean in which @Stateless Annotation is Defined Runs as a Stateful SessionBean during Operation

The following might have occurred:

1. The @Stateless annotation is defined, and
2. The Bean in 1 above is defined in the deployment descriptor (ejb-jar.xml), and
3. The <session-type> tag is not defined in the definition in 2 above.

Take the following action:

- Define the <session-type> tag in the deployment descriptor, and then specify "Stateless".

14.5 EJB Dispatch Feature Errors

The IOP Communication Request is not Load-Balanced when EJB Dispatch Feature Load Balancing is Used

Possible causes are as follows:

[Cause]

- Object injection is performed using the @EJB annotation.
- During EJB bean class constructor/lifecycle module start processing/servlet initialization (init method), the JNDI lookup method is executed to obtain the object reference, and the object reference is shared for use in each process.
- When processing is retried in exception processing in a catch clause, for example when an error has occurred in the Enterprise JavaBeans call, the object reference is shared for use.

[Action]

- When the @EJB annotation is used, change the application to use the lookup method and then reexecute the lookup method when load balancing is required.
- When the object reference is shared for use, at the point when the application is changed because load balancing is required, call the create method again to use the Home/Remote interface, and from the lookup method to use the business interface.

14.6 Interstage Java EE Admin Console Operational Errors

14.6.1 Errors when the Interstage Java EE Admin Console Starts Up

When the Interstage Java EE Admin Console Starts up, the Following Error Messages are Output:

Internet Explorer Cannot Display the Webpage

Internal Server Error

These errors occur if a service that is required in order to use the Interstage Java EE Admin Console, is not running when the [Interstage Java EE Admin Console] node is selected.

Windows32/64

From Windows Services, check if the Interstage Java EE DAS service is running.

If it is not running, start the Interstage Java EE DAS service.

Solaris32/64 Linux32/64

Check whether the Interstage Java EE DAS service is running.

If it is not running, execute the following command to start the Interstage Java EE DAS service:

```
# /opt/FJSVisjee/bin/ijdasstart
```



Note

This problem may occur only in a particular frame. It does not always occur in the entire window.

When the Interstage Java EE Admin Console is Started from the Start Menu or from a Shortcut, it Fails to Start

If this problem has occurred, the web browser process used by the Interstage Java EE Admin Console may still be running. Use the following recovery method or workaround to start the Interstage Java EE Admin Console.

Recovery Method

- Restart the system that this problem occurred on.
- Use the following procedure to end the web browser process that is still running:
 1. Start Windows Task Manager.
 2. Click the [Processes] tab.
 3. Click Image Name "iexplore.exe".
 4. Click the [End Process] button.



Note

Do not end any other processes apart from the web browser.

Workaround

Use the following procedure to start the Interstage Java EE Admin Console:

When Internet Explorer 8/9/10 are used

1. Start the web browser.
2. From the [File] menu of the web browser that was started in step 1, click [New Session] to start the new web browser.
3. In the web browser that was started in step 2, specify the Interstage Java EE Admin Console URL.

When Internet Explorer 7 is used

1. Start the web browser.
2. Specify the Interstage Java EE Admin Console URL.

14.6.2 Login Errors

Login to the Interstage Java EE Admin Console is not Possible, or there is no Window Transition after a Button has been Clicked

If this problem has occurred, a web browser setting that is required for the Interstage Java EE Admin Console to work may have been disabled.

Use the following procedure to enable the relevant web browser setting in the zone that the Interstage Java EE Admin Console runs in.

1. With the Interstage Java EE Admin Console displayed, click the [Tools] menu in the web browser. Select [Internet Options]. Click the [Security] tab.
Do not change the zone that is selected.
2. Click [Custom level...].
3. In the [Scripting] section, change [Active scripting] from "Disable" to "Enable".
4. Restart the web browser and then log in to the Interstage Java EE Admin Console.

Login to the Interstage Java EE Admin Console was Successful, however the [Switch to Console] Button is not Displayed

If this problem has occurred, a Java EE stand-alone operation may have been performed. To use the [Switch to Console] feature, the Interstage Management Console must be installed. If the Interstage Management Console has not been installed, install it.

If the Interstage Management Console has been installed, the operation may have been performed in the Interstage Java EE Admin Console window which clicked and started the [Interstage Java EE Admin console] tree node in an Interstage Management Console. Alternatively, the Interstage Java EE Admin Console window may have been operated using a web browser window that was used to operate the Interstage Management Console previously.

Recovery method

Start a new web browser and then log in to the Interstage Java EE Admin Console.

Cannot Log into the Interstage Java EE Admin Console Using 'root' Solaris32/64

If this problem has occurred, 'root' may have been set as a role in Solaris.

Refer to "Notes on Using 'root' in Solaris" in the "Release Information" chapter, and then take the required action.

14.6.3 Window Errors

In [Clusters] > [JServer Cluster Name] > [Applications] > [Deploy] of the Interstage Java EE Admin Console, the Deployment Window may not be Displayed Correctly after the [OK] Button is Clicked

Possible causes are as follows:

- Insufficient disk space

The disk space of a temporary directory on the server that Interstage was installed on may be insufficient. Delete unnecessary files to increase available disk space and then try again.

- The size of the deployment file has exceeded 2GB

Deployment files exceeding 2GB cannot be deployed. Specify a deployment file that is less than 2GB and then deploy the file.

"The specified file exceeds the maximum allowable size of <maximum size> byte" is Displayed in each Deployment/redeployment Window of the Interstage Java EE Admin Console

The file that was specified exceeded the maximum size for uploaded files.

For details on changing the maximum size of the uploaded file, refer to "Tuning the Maximum Size of the Uploaded File".

HTTP Status 500 is Output to the Interstage Java EE Admin Console Help Window

In the server that runs the Interstage Java EE Admin Console, it may not be possible to resolve the address of the host name (or IP address) that is specified to display the Interstage Java EE Admin Console.

Take one of the following actions:

- Set the server hosts file. (Refer to the example below.)
- Contact the network administrator and review the network environment.



Example

Adding data to the hosts file

- When the Interstage Java EE Admin Console URL is https://host1:12001/javaee_admin

```
xxx.xxx.xxx.xxx      host1
```

- When the Interstage Java EE Admin Console URL is https://host1.domain.com:12001/javaee_admin

```
xxx.xxx.xxx.xxx      host1.domain.com
```

An Error is Output to the Java EE Admin Console Window During an Interstage Java EE Admin Console Operation, and Operations after that are not Possible

Internet Explorer Cannot Display the Webpage

If these messages occur, a problem may have occurred in a service that is required to be able to use the Interstage Java EE Admin Console.

Check whether the following service is running:

Windows32/64

From Windows Services, check if the Interstage Java EE DAS service is running.

If it is not running, start the Interstage Java EE DAS service.

Solaris32/64 Linux32/64

Check whether the Interstage Java EE DAS service is running.

If it is not running, execute the following command to start the Interstage Java EE DAS service:

```
# /opt/FJSVisjee/bin/ijdasstart
```

HTTP Status 404

If these messages occur, a problem may have occurred in the resources required to be able to use the Interstage Java EE Admin Console.

Use the following method to recover the resources:

Windows32/64

From Windows Services, restart the Interstage Java EE DAS service.

Solaris32/64 Linux32/64

Execute the following command to restart the Interstage Java EE DAS service.

```
# /opt/FJSVisjee/bin/ijdasstop  
# /opt/FJSVisjee/bin/ijdasstart
```



Note

This problem may occur only in a particular frame. It does not always occur in the entire window.

During an Interstage Java EE Admin Console Operation, there is no Response or a Blank Page is Displayed

If this problem has occurred, possible causes are as follows:

- The next operation may have been performed before the window loaded completely. In the Interstage Java EE Admin Console, the next operation must be performed after the window has loaded completely.
- The server system time may be slow sharply.

Take the following action before performing the operation:

1. Close the web browser that is currently being used.
2. Start the new web browser.
3. Log in to the Interstage Java EE Admin Console again.

A Session Timeout Occurs Before the Session Timeout Elapses During the Interstage Java EE Admin Console Operation

If this problem has occurred, the server system time may be fast sharply.

Log in to the Interstage Java EE Admin Console and perform the operation again. An alert is displayed informing you that the session has timed out. Click the [OK] button to close the web browser.

When the Operation is Performed from the Interstage Java EE Admin Console, there is no Window Transition.

If this problem has occurred, a web browser setting that is required for the Interstage Java EE Admin Console to work may have been disabled.

Use the following procedure to enable the relevant web browser setting in the zone that the Interstage Java EE Admin Console runs in.

1. With the Interstage Java EE Admin Console displayed, click the [Tools] menu in the web browser. Select [Internet Options]. Click the [Security] tab.
Do not change the zone that is selected.
2. Click [Custom level...].
3. In the [Scripting] section, change [Active scripting] from "Disable" to "Enable".
4. Restart the web browser.
5. Log in to the Interstage Java EE Admin Console.

The Window Display is Corrupted when the Zoom Function is Used

The window display may be corrupted when the zoom function is used. If this happens, use the standard 100% zoom.

An Error Occurs in the Interstage Java EE Admin Console Window Transition and Operation

When the Operations were Performed from Multiple Internet Explorer 8/9/10 Windows

Multiple Interstage Java EE Admin Consoles cannot be operated on one machine using Internet Explorer 8, 9, or 10. If you do, then an error may occur in the Interstage Java EE Admin Console window transition and operation.

To run multiple Interstage Java EE Admin Consoles from one machine, use the following procedure:

- Click the [File] menu of Internet Explorer. Select [New Session] to start a new web browser.
- Operate the Interstage Java EE Admin Console using Internet Explorer 7.

When the Tabbed Browsing Function is Used

Do not run multiple Interstage Java EE Admin Consoles from multiple tabs within a web browser window using the tabbed browsing function. If you do, then an error may occur in the Interstage Java EE Admin Console window transition and operation.

To run multiple Interstage Java EE Admin Consoles, start multiple web browser windows for which the sessions are different, before operating the Interstage Java EE Admin Console.

When the Tabbed Browsing Function is not Used

If the "reuse windows for launching shortcuts" setting is disabled, an error may occur in the Interstage Java EE Admin Console window transition and operation.

Use the following procedure to enable the "reuse windows for launching shortcuts" setting:

In Internet Explorer, click the [Tools] menu. Select [Internet Options]. Click the [Advanced] tab. Select the [Reuse windows for launching shortcuts (when tabbed browsing is off)] check box.

While the Interstage Java EE Admin Console Window is Displayed, the Window Display may Temporarily Appear Garbled

Depending on the status of the operating system or web browser that is being used, it may take a while to render the Java EE Admin Console window. In this case, the window that is being displayed may appear to be garbled or incomplete until such time as the window has completely loaded.

This is not a problem in particular.

It is not Possible to Open/close the Interstage Java EE Admin Console Tree Node

In the web browser, the Internet zone security setting for [Active scripting] may be "Disable".

Change this setting using the following procedure:

1. In Internet Explorer, click the [Tools] menu. Select [Internet Options]. Click the [Security] tab.
2. In [Select a zone to view or change the security settings.], select [Internet].
3. Click [Custom level...].
4. In the [Scripting] section, change [Active scripting] from "Disable" to "Enable".
5. Restart the web browser.
6. Log in to the Interstage Java EE Admin Console.



When Internet zone active scripting is enabled and an Internet site that contains invalid script is accessed, there is a risk that that script will be executed.

14.6.4 Other Errors

An Unintended Value is Saved when the Definition Item is Updated

Another user may have performed an operation at the same time using either of the methods shown below, therefore the value that was specified may have been overwritten.

- Interstage Java EE Admin Console
- asadmin command

Check whether another user has performed an operation at the same time and then perform the operation again if necessary.

A Dialog Box Indicating that the Website Content has been Blocked may be Output while the Interstage Java EE Admin Console is being Used

It does not mean that there is a security problem if this dialog box is output. Click the [Close] button to close the dialog and allow processing to continue.

"Unknown Version" may be Displayed in the Window that was Displayed when the Displayed Page Title or [Version] Button was Clicked

If this problem has occurred, refer to the Interstage Java EE DAS service server log and then take action according to the message that was output.

When the [Switch to Console] button is Clicked, a Dialog Box Informing you that the Session has Timed Out is Displayed

If a session timeout has occurred, a confirmation dialog box will be displayed notifying that the web browser will close.

Take the following actions:

1. Click the [OK] button in the confirmation dialog box to close the web browser that was running the Interstage Java EE Admin Console.
2. To continue Interstage Java EE Admin Console operations, restart the Interstage Java EE Admin Console, then log in from the login window.

If this problem has occurred, the session in the switch destination Interstage Management Console may have been disconnected (the session may have timed out or the service may have restarted).

Before the session disconnection occurs, switch to the Interstage Management Console. Additionally, if the session times out frequently, check whether there is a problem with the session timeout setting.

A Warning Dialog Box Related to Security Information is Displayed when the Logout Occurs

If this problem has occurred, the settings for the use of SSL encrypted communication between the Interstage Java EE Admin Console that is used for performing integrated GUI operations and the Interstage Management Console may not be the same.

Ensure that the settings for the use of SSL encrypted communication are the same in the Interstage Java EE Admin Console and the Interstage Management Console.

The Downloading of Files is not Possible in the Interstage Java EE Admin Console

When files or logs are downloaded, the following Security Alert message may be displayed:

"Your current security settings do not allow this file to be downloaded."

Use the following procedure to enable the relevant web browser setting in the zone that the Interstage Java EE Admin Console runs in.

When Internet Explorer 9/10 is used

1. With the Interstage Java EE Admin Console displayed, click the [Tools] menu. Select [Internet Options]. Click the [Security] tab. Do not change the zone that is selected.
2. Click [Custom level...].
3. In the [Downloads] section, change [File download] from "Disable" to "Enable".

When Internet Explorer 7/8 are used

1. With the Interstage Java EE Admin Console displayed, click the [Tools] menu. Select [Internet Options]. Click the [Security] tab. Do not change the zone that is selected.
2. Click [Custom level...].
3. In the [Downloads] section, change [File download] and [Automatic prompting for file downloads] from "Disable" to "Enable".



Note

- Do not change this security setting if the zone contains a non-trusted site.
- If the download was performed after the above action was taken and an information bar related to security was displayed in the upper part of the browser, take the action displayed in the information bar and then perform the download again.

When Files are Downloaded, the Downloaded Files may have Different Names to the Original Files

When using SSL encrypted communication to download files or logs in Internet Explorer 9, the downloaded files may have different names to the original files.

If this problem occurs, use the following procedure to change the configuration of the web browser to avoid this problem.

1. In Internet Explorer, click the [Tools] menu. Select [Internet Options]. Click the [Advanced] tab.
2. In the [Security] section, unselect the [Do not save encrypted pages to disk] check box.

When Files or Logs are Downloaded, the "xxx might have been moved or deleted." Dialog Box is Displayed and the Files or Logs Cannot be Downloaded

If this message is displayed when downloading files in Internet Explorer 9 after clicking the [Open] button:

1. Click the [Save] button when downloading files or logs, to save the file.
2. Open the file that was saved.

14.7 Abnormalities in Web Service/Web Service Client Development/Operations

If Communication with the Web Service Fails

Follow the procedure below:

- If an exception or message is output, then take action according to its content.
- Ask the web service provider to make sure that the WSDL used in the creation of the web service client is valid.

When the Web Service Endpoint Deployment or Startup Fails

Refer to the following and then take action:

- If an exception or message is output, then take action according to the content.
- Check the portability of the application by enabling verification of the deployment module during deployment. For details, refer to "Verifying the Java EE Application".

If the problem is still not resolved and the condition below applies to the application, then set the property in the table below for the Interstage Java EE DAS service system property, restart the service, then redeploy the application. This will avoid the problem.

- The web service endpoint class specified the service endpoint interface using the @javax.jws.WebService annotation endpointInterface parameter.

Property	Value
com.fujitsu.interstage.javaee.webservice.deploy.91compatiblemode.portcomponent	True

14.8 Abnormalities in JMS Development/Operations

Action when the Message Broker Java Heap is too Small

Windows32/64

- If the message broker was registered in the service using the imqsvcadm command:

Delete the message broker service using the imqsvcadm command remove subcommand, then reregister the message broker service using the imqsvcadm command install subcommand -vmargs option -Xmx<size> argument. For details, refer to "10.11 imqsvcadm" in the "Java EE Operation Commands" chapter.

 **Example**

Setting the message broker Java heap to 512MB:

```
imqsvcadm install -vmargs -Xmx512m
```

- If the message broker was started using the `imqbrokerd` command:

Start the message broker using the `imqbrokerd` command `-vmargs` option `-Xmx<size>` argument. For details, refer to "10.9 `imqbrokerd`" in the "Java EE Operation Commands" chapter.

Example

Setting the message broker Java heap to 512MB:

```
imqbrokerd -vmargs -Xmx512m
```

Solaris32/64 **Linux32/64**

- If the message broker was started using the `rc script`:

Add the `-Xmx<size>` option to the `VM_ARGS` item in the `ijmq` file.

Example

Setting the message broker Java heap to 512MB:

```
VM_ARGS="-Xmx512m"
```

- If the message broker was started using the `imqbrokerd` command:

Start the message broker using the `imqbrokerd` command `-vmargs` option `-Xmx<size>` argument. For details, refer to "10.9 `imqbrokerd`" in the "Java EE Operation Commands" chapter.

Example

Changing the message broker Java heap to 512MB:

```
imqbrokerd -vmargs -Xmx512m
```

Cannot Stop the Message Broker

Use the `imqcmd` command to stop all started message brokers.

If a message broker cannot be stopped using the `imqcmd` command, then follow the procedure below.

Windows32/64

1. Check whether the "imqbrokersvc.exe" image exists in the list of Task Manager processes.
2. Select and right-click the "imqbrokersvc.exe" image, then click [End Process Tree].
3. In the Task Manager Warning dialog box, click [Yes].

Solaris32/64

1. Identify the PID of the relevant message broker.
 - a. Obtain the `imqbrokerd` command PID and PPID.

For a global zone:

```
ps -efz global | grep imqbrokerd | grep -v "grep imqbrokerd"
```

For a non-global zone:

```
ps -ef | grep imqbrokerd | grep -v "grep imqbrokerd"
```

- b. From the PID and PPID obtained by the above command, obtain the message broker PID.

```
ps -e -o pid,ppid | grep $pid | grep -v -w $ppid | awk '{print $(1)}'
```

2. Kill the relevant message broker process.

```
% kill $message broker pid
```

Linux32/64

1. Identify the PID of the relevant message broker.

- a. Obtain the imqbrokerd command PID and PPID.

```
ps -ef | grep imqbrokerd | grep -v "grep imqbrokerd"
```

- b. From the PID and PPID obtained by the above command, obtain the message broker PID.

```
ps -e -o pid,ppid | grep $pid | grep -v -w $ppid | awk '{print $(1)}'
```

2. Kill the relevant message broker process.

```
kill $message broker pid
```

Action when the Access Control File (accesscontrol.properties) or the Password File (passwd) does not Exist

If the access control file (accesscontrol.properties) or the password file (passwd) does not exist and, as a result, commands cannot be used to start or stop the message broker, then take the action described below.

If the Access Control File does not Exist

Copy the "accesscontrol.properties" part of "accesscontrol.properties.default" (the default access control file) to the path of the access control file described in the error information output when the command was executed.

Default access control file folder

Windows32/64

```
C:\Interstage\F3FMisjee\imq\etc\accesscontrol.properties.default
```

Solaris32/64 Linux32/64

```
/opt/FJSVisjee/imq/etc/accesscontrol.properties.default
```

If the Password File does not Exist

Copy the "passwd" part of "passwd.default" (the default password file) to the path of the password file described in the error information output when the command was executed.

Default password file folder

Windows32/64

```
C:\Interstage\F3FMisjee\imq\etc\passwd.default
```

Solaris32/64 Linux32/64

```
/opt/FJSVisjee/imq/etc/passwd.default
```



Note

- To stop the message broker using the imqcmd command, specify the default user and password, then reexecute.
- **Solaris32/64 Linux32/64**
Change the file privileges of the copy destination folder to "root/root 0644".

- After this procedure, the message broker user settings will be initialized. Therefore, you will need to reconfigure the security settings and then restart the message broker. For details on these settings, refer to "JMS Security Function" in the "Java EE Function Security" chapter.
-

If a Message-Driven Bean that uses Queue was Deployed to a JMS Send Destination Resource, the Connection is made to the Topic Physical Storage Destination

Possible causes are as follows:

- The IJServer cluster may not have been specified in the reference destination of the JMS send destination resources. Use the `asadmin` command `list-resource-refs` subcommand to check whether the IJServer cluster has been specified in the reference destination of the JMS send destination resources. If the IJServer cluster has not been specified, use the `asadmin` command `create-resource-ref` subcommand to specify the IJServer cluster in the reference destination. For details about using `create-resource-ref`, refer to "create-resource-ref Subcommand" in the "Java EE Operation Commands" chapter.
- It may not be possible to use the JMS send destination resources. Use the `asadmin` command `get` subcommand `[IJServer cluster name].resources.admin-object-resource.JNDI name.enabled` to check whether the JMS send destination resources can be used. If the JMS send destination resources cannot be used, enable them. For details about using "resources.admin-object-resource", refer to "Definition Items of the resources.admin-object-resource" in the "Java EE Operation Commands" chapter.

After taking the above action, redeploy the Message-driven Bean and then delete the Topic physical storage destination if necessary.

14.9 Java EE Security Errors

Authentication or Authorization Fails

The following might have occurred:

- **The realm setting is invalid**

Check the default realm settings.

If the realm was set in the web application, review the `<realm-name>` tag setting in "Web application deployment descriptor (web.xml)".

- **The Interstage deployment descriptor setting is invalid**

Review the setting in "Interstage deployment descriptor".

- **The keyfile does not exist**

Restart the IJServer cluster.

Check that there are access privileges for the directory on the path that was specified in the keyfile.

- **Cannot connect to Interstage Directory Service**

Start Interstage Directory Service.

Check whether an error has occurred in the network that joins the machines that run Interstage Directory Service and the IJServer cluster.

- **The method used for connections from the client is invalid**

If a request that is related to the guarantee of communication data between the client and the web server was used, communicate using SSL to access the resources in the web application.

14.10 Log Errors

This section explains how to take action to resolve the following log-related issues.

The Specified Log Directory is too Long

If the path name (including the file name after rotation) specified for the log output directory exceeds the OS maximum value:

- It will not be possible to delete the log directory using normal deletion - to do that, refer to "Article ID: 320081 You cannot delete a file or a folder on an NTFS file system volume" on Microsoft Help and Support.
- Collection of the batch information will fail. Therefore, make sure that the path name is within the maximum value range for the OS.

14.11 Uninstall Errors

Error Messages Starting with "ijwscinit" are Output During Uninstallation.

In this case, the IJServer (Java EE) definition information remains in the web server connector definition file and might cause IJServer (Java EE) operation errors. To delete the remaining definition information, restore the web server connector definition file:

1. Temporarily delete the web server to which the IJServer cluster is linked.
2. Create the web server again.
3. Create the web server connector again.

- or -

Change the web server selected for linkage from IJServer (J2EE).

Chapter 15 Samples

This chapter explains the procedures and notes on the use of the Java EE samples.

15.1 Java EE Samples

The Java EE sample application (Account Management Tool) is stored as follows:

Windows32/64

```
C:\Interstage\F3FMisjee\sample
```

Solaris32/64 Linux32/64

```
/opt/FJSVisjee/sample
```

Appendix A Java DB

The Java DB is a simple relational database set up for the purpose of developing applications that link with a database. It has been developed based on Apache Derby V10.4. Previously, it was necessary to set up a special database to run the applications that link with the database, so a lot of time and effort was required to set up an environment for application development and demos. In the Java EE runtime environment, a Java-implemented Java DB database has been provided. It supports the execution of basic SQL using JDBC API, therefore it is possible to check the behavior of the applications that link with the database without having to set up a special database (provided a Java EE runtime environment has been set up).

For details on how to use the Java DB, refer to http://db.apache.org/derby/manuals/index.html#docs_10.4.

In the items described in the above manual, the parts for which the method of use is different and the function range behavior is guaranteed are explained below.

Queries about functions outside the guaranteed behavior range will not be accepted. This is a simple database that should not be used for actual transactions, and has the characteristics below:

- Behavior is only guaranteed for basic SQL.
- Startup in database Windows services is not supported. Databases that were started using a command stop at the time of logoff.
- Linkage with cluster products is not supported.



Note

Use a JDBC driver that supports the same CPU architecture as Interstage.

A.1 Environment Settings

The environment variables shown below must be set to execute the Java DB commands.

Environment Variables

The environment variables are set as shown below. By executing the sysinfo command to check that the Java and Java DB information is displayed, it is possible to verify whether the environment has been set correctly.

Environment variable	Settings	Explanation
DERBY_HOME	Windows32/64 C:\Interstage\F3FMisjee\javadb Solaris32/64 Linux32/64 /opt/FJSVisjee/javadb	Java DB installation directory.
JAVA_HOME	JDK/JRE installation directory.	Executes the command using the JDK/JRE specified in JAVA_HOME.
PATH	Windows32/64 C:\Interstage\F3FMisjee\javadb\bin Solaris32/64 Linux32/64 /opt/FJSVisjee/javadb/bin	Setting for the execution of commands using only the command name.

A.2 Java DB Operations

This section explains the Java DB operations.

Built-in Environment

In a built-in environment, the database starts up when the Java DB class is loaded on the Java VM. The database also stops when the Java VM stops.

Client/server Environment

The Java DB operations are performed using the `asadmin` command `start-database` subcommand and `stop-database` subcommand. For details, refer to "`asadmin`", "`start-database` subcommand" and "`asadmin`", "`stop-database` subcommand" in the "Java EE Operation Commands" chapter.

The following can be specified when the Java DB is started up:

- Java DB host name or IP address

If there are multiple network interfaces, access is only allowed from the specified IP address. By default, '0.0.0.0' is specified and access is allowed from multiple network interfaces.

- Java DB port number

Port used to receive connections from the client. The default is 1527. To connect from the client, specify the port number specified in the URL for the connection to the database.

- Java DB system directory

For details, refer to [A.3 Java DB System Directory](#)".

The behavior of operations using the `startNetworkServer` command and `stopNetworkServer` command is not guaranteed.

A.3 Java DB System Directory

The Java DB creates the database directory in the specified system directory and reads the system directory configuration file. The directories shown below are used as the default Java DB system directory.

To change this Java DB system directory, specify the `-dbhome` option when the database is started using the `asadmin` command `start-database` subcommand.

Windows32/64

- Built-in environment
 - Java VM current directory (Note)
- Client/server environment
 - If `derby.log` exists in the current directory when the database starts up:
Current directory
 - If `derby.log` does not exist in the current directory when the database starts up:
[Java EE common directory]\databases

Solaris32/64 Linux32/64

- Built-in environment
 - Java VM current directory (Note)
- Client/server environment
 - If `derby.log` exists in the current directory when the database starts up:
Current directory
 - If `derby.log` does not exist in the current directory when the database starts up:
[Java EE common directory]/databases

Note: For details on the Java VM current directory, refer to the specifications for the functions that use the Java DB.

A.4 SQL

SQL for which the behavior is guaranteed is shown below.

Statement

- ALTER TABLE statement
- CREATE statements
- DROP Statements
- RENAME statements
- SET statements
- DELETE statement
- FOR UPDATE clause
- FROM clause
- GROUP BY clause
- HAVING clause
- INNER JOIN
- INSERT statement
- JOIN operation
- LEFT OUTER JOIN
- ORDER BY clause
- Query
- RIGHT OUTER JOIN
- ScalarSubquery
- SelectExpression
- SELECT statement
- TableExpression
- TableSubquery
- UPDATE statement
- VALUES expression
- WHERE clause

Built-in Functions

- ABS or ABSVAL
- AVG
- Concatenation
- COUNT
- NULLIF and CASE expressions
- CURRENT_DATE
- CURRENT_TIME
- CURRENT_TIMESTAMP

- LENGTH
- LOCATE
- LCASE or LOWER
- LTRIM
- MAX
- MIN
- MOD
- RTRIM
- SQRT
- SUBSTR
- SUM
- UCASE or UPPER

Built-in System Functions

None

Built-in System Procedures

None

Data Types

- BIGINT
- BLOB
- CHAR
- CHAR FOR BIT DATA
- CLOB
- DATE
- DECIMAL
- DOUBLE
- DOUBLE PRECISION
- FLOAT
- INTEGER
- LONG VARCHAR
- LONG VARCHAR FOR BIT DATA
- NUMERIC
- REAL
- SMALLINT
- TIME
- TIMESTAMP
- VARCHAR
- VARCHAR FOR BIT DATA

Operator

- +, -, *, /, unary + operator, unary - operator
- AND, OR, NOT
- Comparisons (<, =, >, <=, >=, <>)
- IS NULL, IS NOT NULL
- LIKE
- BETWEEN
- IN
- EXISTS
- Comparison predicates (ALL, ANY, SOME)

A.5 URL Attribute when there is a Connection to the Database

The following URLs are used for the connection to the database using a Java DB JDBC driver (placeholders are indicated in italics):

- Built-in environment
`jdbc:derby:databaseName[;URLAttributes=<value>[;...]]`
- Client/server environment
`jdbc:derby://server[:port]/databaseName[;URLAttributes=<value>[;...]]`

The following values are specified for the URL attribute placeholders:

URL attribute	Value that is specified
server	Host name (or IP address) used by the database to receive requests
port	Port number used by the database to receive requests
databaseName	Name of the database that is connected to
URLAttributes=value	Attribute name and value for the URL attribute

The properties for which the behavior is guaranteed using this URL attribute of URLAttribute are as follows:

- create=true



About dedicated read connections [Solaris32/64](#) [Linux32/64](#)

When a user without write privilege for the database starts the Java DB, a dedicated read connection is always used to connect to that database.

About the encryptionAlgorithm attribute

The default value for the encryptionAlgorithm attribute is "AES/CBC/NoPadding".

A.6 Datasource Properties

The various datasources provided in the Java DB contain properties (called a 'datasource property') that can be updated using the setXXX method and referenced using the getXXX method.

The datasource properties for which the behavior is guaranteed are as follows:

- ConnectionAttributes
- DatabaseName

- DataSourceName
- Description
- User
- Password
- PortNumber
- ServerName
- CreateDatabase



Note

About User properties and Password properties

The user ID and password specified in the User and Password properties are not used for database authentication. They are used to ensure that the user ID and password are specified when connecting to the Java DB (client/server environment) from an IJServer cluster or the Interstage Java EE DAS service. The specified user ID is used as the schema name. You can set the password to any string.

A.7 Security Functions

Provided Java DB Security Functions

There are no security functions that can be used.

Users who can Start Java DB (Client/server Environment)

For details, refer to "Privileges and Authenticated Users" in the "Java EE Function Security" chapter.

Tool Execution Privilege

The table below lists execution privilege for the tools provided with Java DB, execution privilege for server processes, and details of authenticated users:

Operation	OS user privileges		Users with login privilege
	Command execution	Server process execution	
ij	Ordinary users	-	No authentication
sysinfo	Ordinary users	-	No authentication
dblook	Ordinary users	-	No authentication

Database File Resource Owners and Access Privileges [Solaris32/64](#) [Linux32/64](#)

Database file resources are created with the owner and access privileges below:

Database directory	Resource directory	Owner	Group	Access privilege
Database name	Java DB system directory	User that started the Java DB when the database was created	Owner's group	Depends on the umask value set from the console when the Java DB is started

When a user without write privilege for the database file resources starts the Java DB, a dedicated read connection is always used to connect to that database. If required, stop the Java DB and manually change the access privileges under the database directory, then restart the Java DB.

Log File Owners and Access Privileges Solaris32/64 Linux32/64

Log files are created with the owners and access privileges below:

Java DB log name	Resource directory	Owner	Group	Access privilege
derby.log	Java DB system directory	If there is no derby.log in the Java DB system directory, the user who started the Java DB	Owner's group	Depends on the umask environment setting
dblook.log	Current directory	If there is no dblook.log in the current directory, the user who executed the dblook tool	Owner's group	Depends on the umask environment setting

If required, stop Java DB and manually change the Java DB log access privilege, then restart the Java DB.



Note

Owner and access privileges when the Interstage operator group has been changed Solaris32/64 Linux32/64

If the `issetsecuritymode` command is used to change the Interstage operator group, then all file resources under the Java DB default system directory belong to the post-change Interstage operator group. If use of the one database is shared between the Interstage operator group users, then enable write privilege for the owner group. If a storage destination other than the default was specified for the system directory, refer to "Notes on Resource Access Privileges when the Service Operator User has been Changed" in the "Release Information" chapter and change the privileges.

Owner privileges and access privileges for the bundled ejbtimer database Solaris32/64 Linux32/64

The file resources for the ejbtimer database bundled with the product are set up with the privileges below. For details on the `APP.EJB__TIMER__TBL` table already prepared in the ejbtimer database, refer to "EJB Timer Service" in the "Functionality Provided in the Java EE Application" chapter.

Directory	Resource directory	Owner	Group	Access privilege
ejbtimer	[Java EE common directory]/databases	System administrator	Interstage operations group	775

A.8 Derby Properties

In the Java DB, these properties can be used to set the configurations for the behavior of a system, specific database, or specific database-related project (table or index).

The properties for which the behavior is guaranteed (=edit is possible) are as follows:

- `derby.system.home`

A.9 Tools

The following tools can be used:

- `ij`
- `sysinfo`
- `dblook`

A.10 Troubleshooting

This section explains how to take action to resolve problems when the JavaDB is used.

When there is an Abnormal Termination of the Java DB

If Java DB terminates abnormally, then the db.lck file might remain in the Java DB system directory and the database access to fail.

To start the database, delete the db.lck file manually. If this file is deleted while the database is being used, the database may be referenced from other Java VMs and data may be corrupted. Before deleting this file, check that the database is not being used.

When '0' is Specified for the URL Port Number for the Connection to the Database

When '0' is specified for the URL port number for the connection to the database, 1527 is used for the actual connection.

When an Error Occurs due to too many Open Files During Connection to the Java DB

This error might occur if there are not enough file descriptors. To solve this, either unbind unnecessary connections or review the file descriptor settings.

When a Warning Indicating that derby.log Cannot be Accessed is Output During the Java DB Start

If the user who starts the Java DB does not have write privileges for derby.log and its directory, then the warning below is output when the Java DB is started, and start processing continues:

```
Unable to access derby.log in <derby.log absolute path>.
CLI416: Continuing to start database
```

If this message is output, the Java DB can continue to be used as is, but start and stop log information is not written to derby.log. If it is essential to have this information written to derby.log, then manually assign read and write privileges for the derby.log and its directory to the user who starts the Java DB, then restart the Java DB.

When 'Permission denied' is Output in Relation to dblook.log During dblook Tool Execution Solaris32/64

Linux32/64

If the user executing the dblook tool does not have write privileges for the current directory and dblook.log in the current directory, then the error below is output when the tool is executed, and processing is interrupted:

```
Error initializing log file(s): java.io.FileNotFoundException: dblook.log (Permission denied)
```

Manually assign read and write privileges for the current directory and dblook.log in the current directory to the user executing the dblook tool, then execute the tool again.

Other Known Problems

Maximum String Length of the LONG VARCHAR Data Type

The maximum length for LONG VARCHAR mentioned in Derby Reference Manual is 32700 characters, but the correct is 32672 characters.

Syntax of "ALTER TABLE Statement"

The syntax of "ALTER TABLE statement" mentioned in Derby Reference Manual is incorrect. The correct is as follows:

```
ALTER TABLE table-Name
{
  ADD COLUMN column-definition |
  ADD CONSTRAINT clause |
  DROP [ COLUMN ] column-name [ CASCADE | RESTRICT ] | DROP { PRIMARY KEY | FOREIGN KEY constraint-
name | UNIQUE constraint-name | CHECK constraint-name | CONSTRAINT constraint-name } |
  ALTER [ COLUMN ] column-alteration | LOCKSIZE { ROW | TABLE }
}
```

Appendix B File Configuration

File configurations are explained below.

B.1 Interstage Java EE DAS Service File Configuration

The Interstage Java EE DAS service file configuration is shown below. To find out the location of the parent directory of the following directories, refer to "Interstage Java EE DAS Service", "Interstage Java EE DAS Service File Configuration" in the "Functionality Provided in the Java EE Application" chapter.

<--Higher directory Lower directory -->	Explanation
addons	
applications	Directory that unpacks the module after it is deployed.
j2ee-apps	Unpacks the EAR module.
application name	Stores the resources for each application.
submodule name_extension	Stores the resources for each submodule.
j2ee-modules	Unpacks the WAR/EJB-JAR/RAR/JAR modules.
application name	Stores the resources for each application.
config	Stores all IJServer cluster and server instance definition information that exists in the domain.
domain.xml	Definition file in which the domain definition information is stored.
keystore.jks	The default keystore file.
cacerts.jks	The default trust store file.
generated	Directory that stores temporary files.
ejb (*1)	Stores EJB-related files.
jsp (*2)	Stores JSP-related files.
policy	Stores the policy files.
xml	Stores the WAR/EJB-JAR/RAR/JAR module definition information.
imq	Root directory for mq that is attached to the domain instance.
instances	Stores the instances for mq attached to the domain instance.
instance name	Root directory for the imqbroker instance.
etc	Stores the imqbroker definition files.
log	Stores the imqbroker log files.
lib	Stores the common JAR files used between multiple IJServer clusters.
classes	Stores the common classes used between multiple IJServer clusters.
logs	Stores the Interstage Java EE DAS service log files.
server.log	The server log file.
jvm.log	Information that must be investigated by a Systems Engineer.
jmxoperation.log.* (*3)	Internal log file used for maintenance.
http	The directory that stores access logs and trace logs.
server_access_log	The access log file.
trace.log	The trace log file.

<--Higher directory Lower directory -->		Explanation
iiop		The directory that stores IIOP access logs.
	iiop_access.log	The IIOP access log file.
session-store		Stores the application conversational states.
Work		Stores Web container-related files.

*1)

This depends on the configuration of the application to be deployed.

When deploying large or numerous deployment modules, it is recommended that you deploy the application in the development environment to check the product capacity first.

When CMP Entity Bean is deployed, a CMP Entity Bean supplementary class is generated automatically and stored at the time of the deployment.

*2)

The JSP compilation result included in the application to be deployed is stored.

The storage folder can be changed in scratchdir of Interstage Deployment Descriptor (sun-web.xml).

The JSP compilation result is generated when precompilejsp is specified for the asadmin deploy subcommand and executed, and also at the time of the first request to JSP.

*3)

The log file will be named with a suffix that is a sequential number starting from 0, i.e., imxoperation.log.0, imxoperation.log.1, and so on.

B.2 Interstage Java EE Node Agent Service File Configuration

The Interstage Java EE Node Agent service file configuration is shown below. To find out the location of the parent directory of the following directories, refer to "Interstage Java EE Node Agent Service", "Interstage Java EE Node Agent Service File Configuration" in the "Functionality Provided in the Java EE Application" chapter.

<--Higher directory Lower directory -->		Explanation
ijna		The directory that stores resources managed by the Interstage Java EE Node Agent service.
agent		
	logs	The directory that stores the log file.
	server.log	The server log file.
server instance name		The directory that stores resources managed by the IJServer cluster. It is created per server instance. For details, refer to "IJServer Cluster File Configuration" below.

B.3 IJServer Cluster File Configuration

The IJServer cluster file configuration is shown below. To find out the location of the parent directory of the following directories, refer to "IJServer Cluster", "IJServer Cluster File Configuration" in the "Functionality Provided in the Java EE Application" chapter.

<--Higher directory Lower directory -->		Explanation
Server instance name		The directory that stores the assets that are managed by the IJServer cluster. It is generated in server instance units.
addons		

<--Higher directory Lower directory -->		Explanation
bin		The directory that stores server instance-related commands.
	stopserv	The command that stops the server instance.
current		The current directory.
	latest	The latest current directory.
	derby.log (*1)	The JavaDB log file.
	._com_sun_appserv_pid	The process ID storage file.
generated		The directory that stores policy files and temporary files.
	jsp (*3)	Stores JSP-related files.
	policy (*2)	Stores the policy files.
imq		The root directory for mq that is attached to the domain instance.
logs		The directory that stores log files.
	server.log	The server log file.
	jvm.log	The Java VM log file.
	monitor-jvm.log	The Java VM information log file.
	monitor-connectionqueue.log	The connection queue information log file.
	monitor-httpListener.log	The HTTP Listeners information log file.
	monitor-transaction.log	The transaction information log file.
	monitor-jdbcpool.log	The JDBC Connection Pool information log file.
	monitor-threadpool.log	The thread pool information log file.
	monitor-connection.log	The connection information log file.
	monitor-connectorpool.log	The JMS/Connector Connection Pool information log file.
	monitor-messagedriven.log	The MDB information log file.
	monitor-entitybean.log	The Entity Bean information log file.
	monitor-statefulsession.log	The Stateful Session Bean information log file.
	monitor-statelessession.log	The Stateless Session Bean information log file.
http		The directory that stores access logs and trace logs.
	server_access_log	The access log file.
	trace.log	The trace log file.
iiop		The directory that stores IIOP access logs.
	iiop_access.log	The IIOP access log file.
session-store		The directory that stores the application conversation states. It is used in the EJB container caching feature. For details, refer to "Enterprise Bean Instance Caching" in the "Java EE Function Tuning" chapter.
	ejb	
	j2ee-apps	
	j2ee-modules	Stores the conversational state when an EJB deployed in an EJB-JAR module is passivated.
work		Stores Web container-related files.

*1)

For details on the JavaDB log file, refer to the "Java DB" appendix.

*2)

If the deployment is performed when the IIServer cluster is stopped, the policy file generated at the time of the deployment is not stored. The policy file generated at the time of the deployment will be stored the next time the IIServer cluster is started.

*3)

The JSP compile result that is included in the application to be deployed is stored.

The storage destination in scratchdir of Interstage Deployment Descriptor (sun-web.xml) can be changed.

The JSP compile result is generated when precompilejsp is specified for the asadmin deploy subcommand and executed, and also at the time of the first request to JSP.

Appendix C Tutorial

This appendix explains the flow for the developed deployment resources, from building the production environment using the Interstage Java EE feature until application operation.

This document uses the sample application (Account Management Tool) stored in the following folder:

Windows32/64

C:\Interstage\F3FMisjee\sample

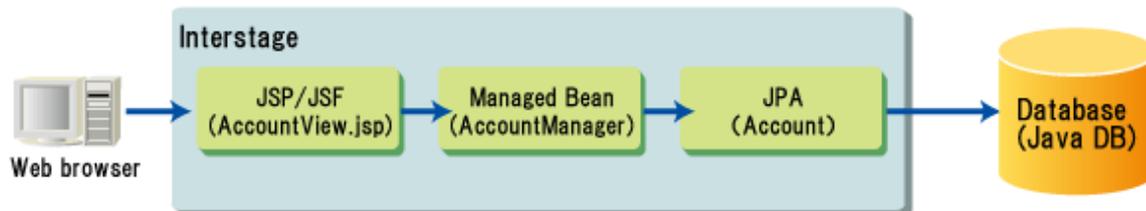
Solaris32/64 Linux32/64

/opt/FJSVisjee/sample

C.1 Application Overview (Account Management Tool)

The sample application is a simple application that manages user account information that was entered in the Web browser in a database.

As illustrated below, the request from the Web browser is received in JSP, and the database is accessed using JPA.

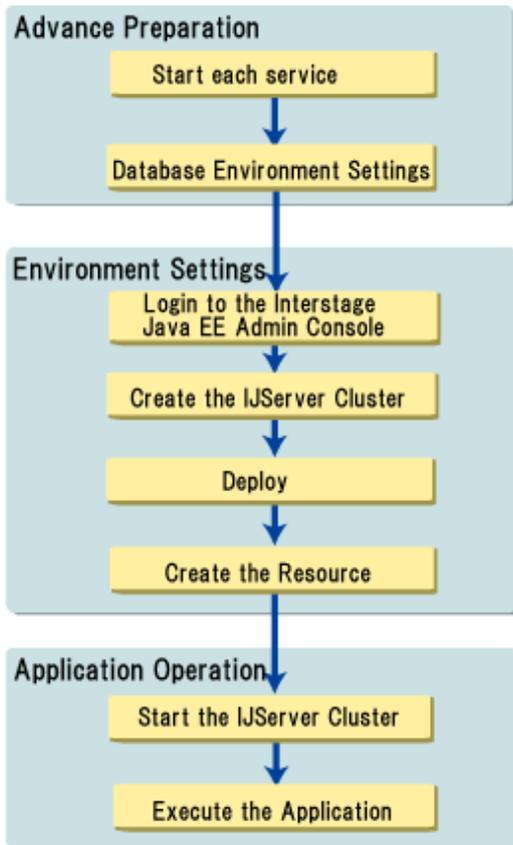


The JPA entity class is mapped to the "ACCOUNT" database table, and the information below is defined as the database columns and the mapped fields (the @Column annotation is not defined, therefore the field name will be used as the column name mapped to the database):

Item	Field
Primary key	userid
Field name mapped to the column	userid
	password
	fname
	lname
	email
	company

C.2 Flow from Environment Settings until Operation

The diagram below illustrates the flow from application environment settings until operation. Java DB, which is provided by the Java EE feature, is used as the simplified database for development.



C.3 Advance Preparation Before Environment Settings

C.3.1 Starting each Service

To use the Java EE feature, ensure that the services below have been started:

- Interstage Java EE DAS Service
- Interstage Java EE Node Agent Service

To start the services, follow the procedure below:

Windows32/64

Start the Windows services below:

- Interstage Java EE DAS
- Interstage Java EE Node Agent

Solaris32/64 Linux32/64

Execute the commands below (for details, refer to "Java EE Operation Commands" in the Java EE Operator's Guide):

- ijdasstart
- ijnastart

For details on each service, refer to the explanation on each feature.

C.3.2 Database Environment Settings

Start the database that will be used - in this document, Java DB (which is provided by the Java EE feature) is used as the simplified database for development.

Starting the Database

To start the database, enter the command below:

Windows32/64

```
> C:\Interstage\F3FMisjee\bin\asadmin start-database
```

Solaris32/64 Linux32/64

```
> /opt/FJSVisjee/bin/asadmin start-database
```

The default port used as the database is 1527 - if it is already being used by another service, a startup error will occur. In this case, either stop the service and re-execute the command, or specify the `--dbport` option with an available port.

Generating the Database Tables

In the sample application, the content below is defined in the JPA persistence.xml. When the sample application is deployed, the tables are created automatically, and when the deployment is cancelled, the tables are deleted automatically.

```
<property name="toplink.ddl-generation" value="drop-and-create-tables"/>
```

To predefine the tables in the Java DB, use the `ij` command used to execute the database operations. The sample application provides a file for table creation. Using the `ij` command, by specifying this file and then executing as shown below, the tables will be generated.

Windows32/64

```
> C:\Interstage\F3FMisjee\javadb\bin\ij C:\Interstage\F3FMisjee\sample\setup\createDDL.jdbc
```

Solaris32/64 Linux32/64

```
> /opt/FJSVisjee/javadb/bin/ij /opt/FJSVisjee/sample/setup/createDDL.jdbc
```

The sample application also provides a file for table deletion. In the same way as for the generation of the tables, by executing as shown below the tables will be deleted.

Windows32/64

```
> C:\Interstage\F3FMisjee\javadb\bin\ij C:\Interstage\F3FMisjee\sample\setup\dropDDL.jdbc
```

Solaris32/64 Linux32/64

```
> /opt/FJSVisjee/javadb/bin/ij /opt/FJSVisjee/sample/setup/dropDDL.jdbc
```

The definition below is contained in the abovementioned file so that there will be a connection to the database. If the port used in the database startup has changed, change the port number.

```
Connect 'jdbc:derby://localhost:1527/interstage-samples;create=true';
```

C.4 Environment Settings

C.4.1 Logging in to the Interstage Java EE Admin Console

The Java EE feature environment can be configured either via the Interstage Java EE Admin Console or the `asadmin` command. In the explanation that follows, the environment configured using the Interstage Java EE Admin Console are used.

In the Web browser, point to https://localhost:12001/javaee_admin to display the Interstage Java EE Admin Console window.

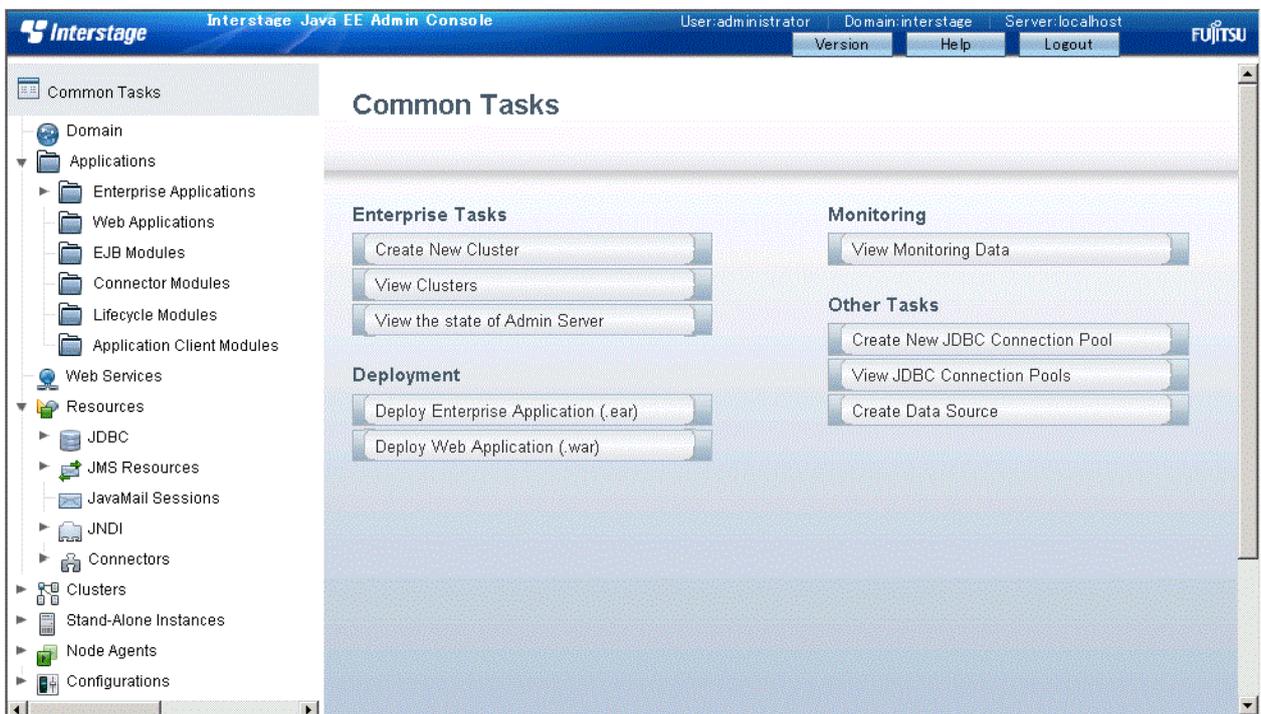
Note

The above URL is for the standard installation. If the protocol information (http/https) or port number (12001) used at the time of the installation was changed, change the specified URL according to the content following the changes.

The login window is displayed below. Enter the login information, then log in. The user ID/password is authenticated using an operations realm. In the initial setup operating system realm, the operating system login user and password are used.



The various operations windows are displayed as follows:



C.4.2 Creating the IJServer Cluster

Create the IJServer cluster and server instance which will run the application. When you check the behavior of the demo or sample application, you can also check the behavior of the application which has been deployed to the Interstage Java EE DAS service without first creating an IJServer cluster. However, for jobs, it will be necessary to create the IJServer cluster.

Using the Interstage Java EE Admin Console, operate as follows:

1. From the tree, select [Cluster].
2. Click the [New] button to display the window for creating the new IJServer cluster.
3. In the window for creating the new cluster, enter the following information:

Item	Content	Example
Name	Specify any name.	Cluster001
Configuration	"default-config" can be specified if you want to use the default configuration.	default-config

4. Click the [New] button of the server instance to be created, and specify any name as the instance name which will be displayed. Here, "Instance001" is entered.
5. After entering all the information, click the [OK] button.

The creation of the IJServer cluster is now complete.

C.4.3 Creating the Resource

Create the JDBC resource for the access to the database. In the sample application, the content shown below is defined in the JPA persistence.xml, therefore the JDBC resource must be defined using the name "jdbc/Account".

```
<jta-data-source>jdbc/Account</jta-data-source>
```

To create the resource, the following two stages of operation will be required.

- [Creating the Connection Pool](#)
- [Creating the JDBC Resource](#)

Creating the Connection Pool

This section explains how to create the new connection pool. A connection pool such as the provided "DerbyPool" can also be used at the time of the installation.

Using the Interstage Java EE Admin Console, operate as follows:

1. From the tree, select [Resource]-[JDBC]-[Connection Pool].
2. Click the [New] button to display the window for creating the new JDBC connection pool.
3. In the new JDBC connection pool window (step 1/2), enter the following information then click the [Next] button.

Item	Content	Example
Name	Any value.	AccountCP
Resource Type	Resource type	javax.sql.DataSource
Database Vendor	Database vendor	JavaDB

4. In the new JDBC connection pool window (step 2/2), execute the connection pool tuning.

The JDBC driver unique properties must be specified for the additional properties, and the database connection destination must be specified. Here, the following are specified. If the port used in the database startup has changed, change the value set for PortNumber.

Name	Value
PortNumber	1527
User	APP
Password	APP
ServerName	localhost
DatabaseName	interstage-samples
ConnectionAttributes	;create=true

5. After entering all the information, click the [Finish] button.

The creation of the JDBC connection pool is now complete.

Creating the JDBC Resource

Using the Interstage Java EE Admin Console, operate as follows:

1. From the Interstage Java EE Admin Console tree, select [Resource]-[JDBC]-[JDBC Resource].
2. Click the [New] button to display the window for creating the new connection pool JDBC resource.
3. Enter the information shown below in the new JDBC resource window then click the [OK] button.
4. To specify the target that will use the resource in "target", specify the name of the IJServer cluster created just now (Cluster001). To confirm the behavior in the Interstage Java EE DAS service, specify "server" as the target.

Item	Content	Example
JNDI Name	Any value.	jdbc/Account
Pool Name	Connection pool.	AccountCP
Target	Cluster that will use the JDBC resource.	Cluster001

The creation of the JDBC resource is now complete.

C.4.4 Deployment

Deploy the deployment module. In the explanation which follows, the enterprise application (.ear) file is deployed.

1. Using the Interstage Java EE Admin Console, operate as follows:
2. From the tree, select [Application]-[Enterprise Application] to display the [Enterprise Application] window.
3. In the [Enterprise Application] window, click the [Deploy] button to display the [Deploy Enterprise Application/Module] window.
4. For the [Location] definition configuration, specify the following .ear file in [Package File to be uploaded to the Server]:

Windows32/64

C:\Interstage\F3Fmisjee\sample\account.ear

Solaris32/64 **Linux32/64**

/opt/FJSVisjee/sample/account.ear

5. Specify the name of the IJServer cluster created just now (Cluster001) as the target, then click the [OK] button. To confirm the behavior in the Interstage Java EE DAS service, specify "server" as the target.



Note

If the APPDEP1008 error occurs and the JDBCRA0006 error message is output as the exception information, the database startup explained in "Database Environment Settings" may not have been executed normally. The sample application which is used

automatically generates tables in the database which is used in the application at the time of the deployment. For this reason, the database must be started beforehand. Review the database environment settings.

The deployment is now complete.

All the environment settings are now complete. The application operation now follows.

C.5 Application Operation

C.5.1 Starting the IJServer Cluster

Start the IJServer cluster which was created. When the behavior is confirmed in the Interstage Java EE DAS service, the cluster will already have started, therefore this operation is unnecessary.

Using the Interstage Java EE Admin Console, operate as follows:

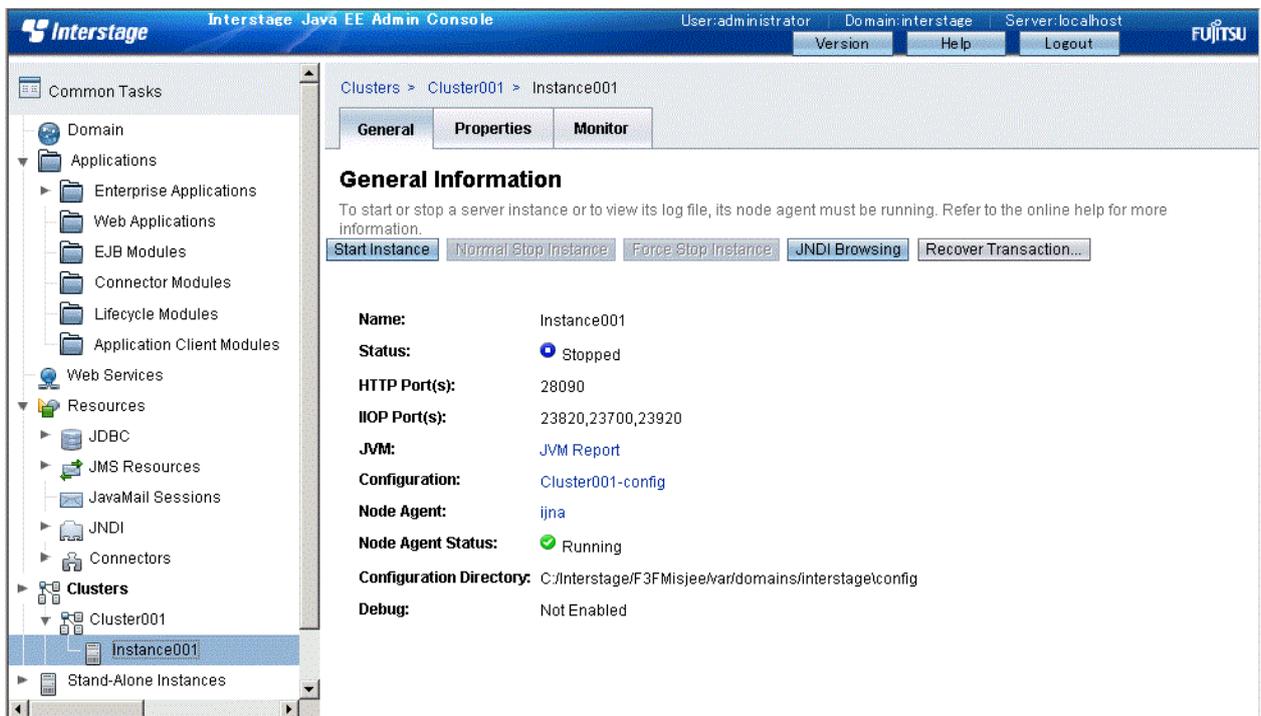
1. From the tree, select [Cluster].
2. Select the cluster which was created.
3. Click [Start Cluster] to start the cluster.

This completes the startup of the IJServer cluster, and the application is now in an operable state.

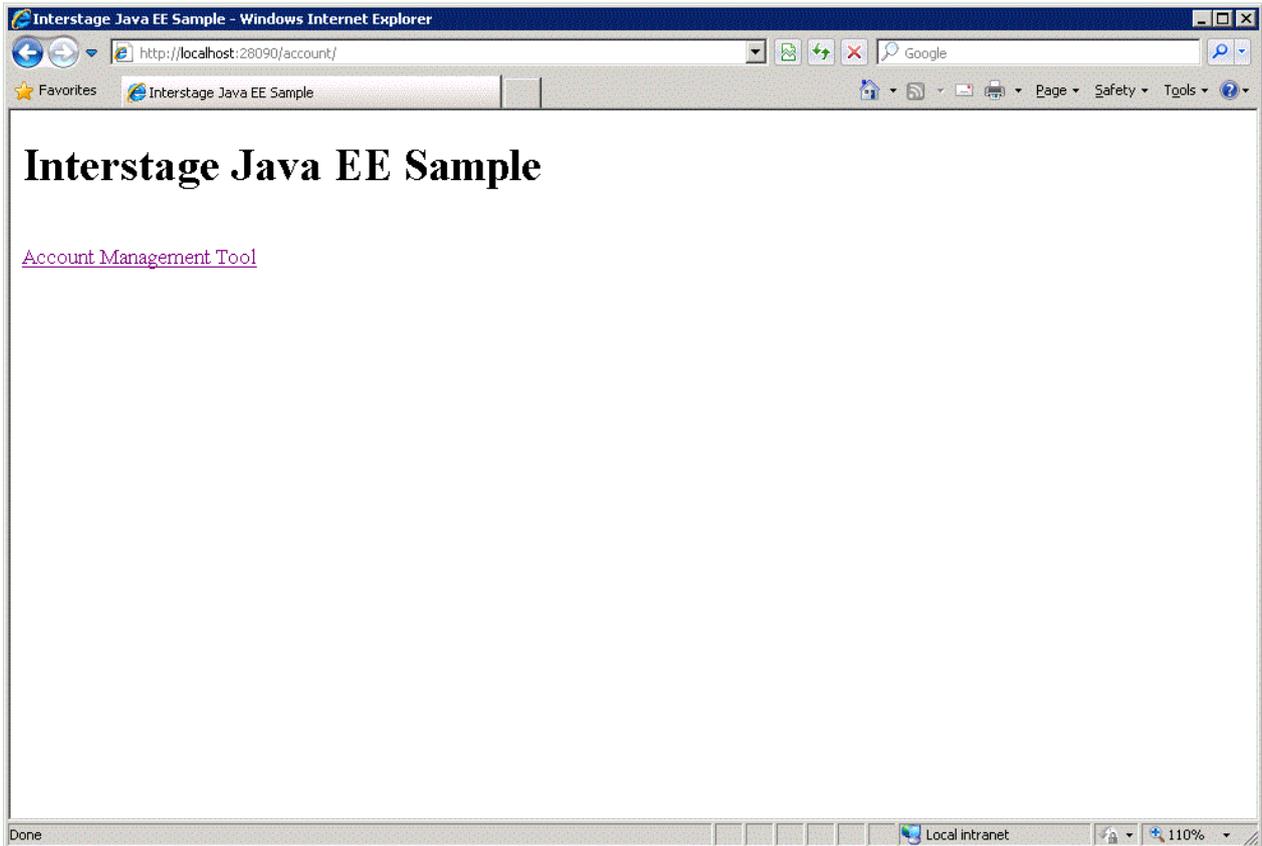
C.5.2 Executing the Application

In the Web browser, point to `http://[host name]:[HTTP port]/account` and check the behavior of the application.

Specify the HTTP port of the server instance that will be used for the connection. By referencing the general information of the Interstage Java EE Admin Console server instance, the port number which is being used will be displayed as follows:



The following information will be displayed. Click the "Account Management Tool" link to execute the sample.



The following information will be displayed. This sample is a simple sample in which the user account is registered/modified/deleted/ browsed/list searched.

