

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

(Java EE 6 Edition)

Windows/Solaris/Linux

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Preface

Purpose of this Document

This document introduces the environment builds and application operations for the development of Interstage Java EE 6 applications.

This manual is intended for the following readers:

- People who operate applications using Java EE components

Difference in Edition Features

There are no Java EE 6-specific differences between Enterprise Edition and Standard-J Edition.

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 Java EE 6 Overview](#)

This chapter provides an overview of Java EE 6, explains restrictions, and provides notes for the Java EE runtime environment.

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

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

[Chapter 3 Java EE Application Development](#)

This chapter explains the development process of the Java EE application.

[Chapter 4 Java EE Application Operation](#)

This chapter explains the Java EE application operation method.

[Chapter 5 Java EE 6 Security](#)

This chapter explains the security features of Java EE 6.

[Chapter 6 Java EE 6 Tuning](#)

This chapter explains Java EE 6 tuning.

[Chapter 7 List of Definition Items](#)

This chapter explains the definition items for Java EE application operations. Refer to this chapter for details on the default values for each definition item and the ranges that can be specified.

[Chapter 8 Maintenance\(Resource Backup / migration of Resources to Another Server\)](#)

This chapter explains the maintenance of the Java EE 6 application operating environment.

Chapter 9 Java EE 6 Operation Commands

This chapter explains the Java EE 6 operation commands.

Chapter 10 Java EE 6 Messages

This chapter explains the Java EE 6 related messages.

Chapter 11 Troubleshooting

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

Chapter 12 Migrating Java EE 6

This chapter explains how to migrate Java EE 6.

Chapter 13 Tutorial

This chapter explains the flow from building the production environment using Java EE 6 to operation of the sample application.

Appendix A Java DB

This appendix explains the Java DB.

Appendix B File Configuration

This appendix explains the Interstage Java EE 6 DAS service file configuration.

Appendix C Log Files

This appendix provides information about the logs that are output in Java EE 6.

Appendix D Port Numbers

This appendix explains using port numbers in Interstage Application Server.

Appendix E Resident Processes

This appendix provides information on the Interstage Application Server resident processes that need to be monitored.

Appendix F Software Requirements

This appendix lists the software required to use Java EE 6.

Appendix G Message Information

This appendix explains the messages that must be monitored.









Appendix H Functional Comparison with Interstage HTTP Server 2.2

This appendix explains the functional differences between the Interstage HTTP Server 2.2 and Java EE 6.

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. |
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| | |
|-------------------|--|
| Linux32/64 | 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) |
| 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) |

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Chapter 1 Java EE 6 Overview

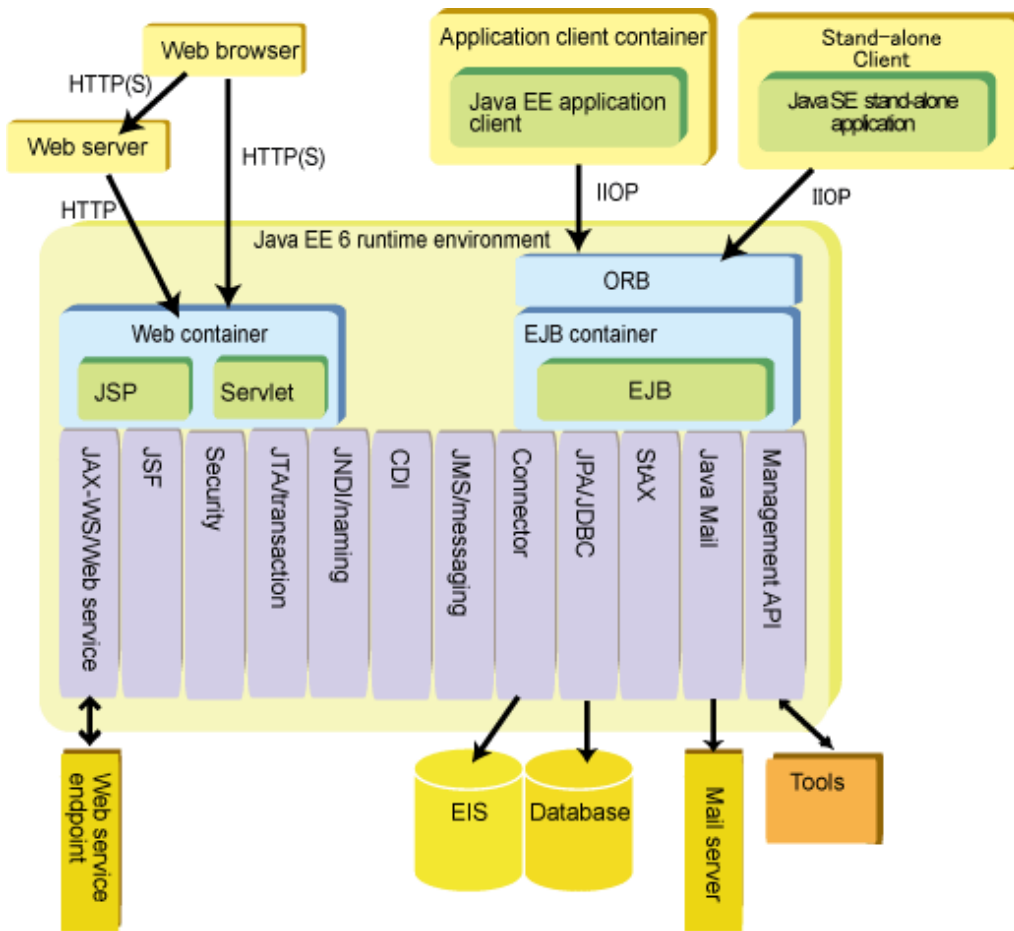
This chapter provides an overview of Java EE 6, explains restrictions, and provides notes.

1.1 Overview of Java EE 6

Interstage Java EE 6 provides various features, based on the Java SE environment, that are required for the implementation of enterprise-class multilayered services. Additionally, to maximize application portability, Interstage Java EE 6 has been based on the open source software, GlassFish v3.1.

Java EE 6 Configuration

The Java EE 6 configuration is explained below.



Java EE 6 Components

Interstage Java EE 6 provides a runtime environment of three application components: the Java EE application client, Servlet/JSP, and Enterprise JavaBeans. These are called "Java EE 6 components". These Java EE 6 components are set up in the runtime environment when deployed.

Java EE Application Client

The "Java EE application client" is a Java application that is executed on the application client container. It accesses the server environment application from the client.

Servlet/JSP

"Servlet/JSP" runs using requests that are sent to the web server from the web browser using HTTP, or the more secure HTTPS protocol. Additionally, it can also be made public as a web service. Pages, web filters and web event listeners created using Servlet, JSP or JSF are known collectively as "web components".

Enterprise JavaBeans (EJB)

Enterprise JavaBeans (EJB) is an application that runs on the server. It can be accessed from the Servlet, or from the client via ORB (Object Request Broker) using the IIOP protocol. It implements the actual business logic, such as database access processing, in the Enterprise JavaBeans that receives the request from the client. EJB can be published as a web service. It can also be used as a Message-driven Bean which receives asynchronous messages.

It can use the Remote interface, which can be called remotely, and the Local interface, which can only be called in the same Java VM. Even when the Remote interface is used, if it is called in the same Java VM, ORB will call the application automatically without using IIOP communication. Performance is therefore optimized because there is no unnecessary network communication.

Additionally, the application components shown below can also be executed as client applications.

Java SE Standalone Applications

The "Java SE standalone application" is a Java application that is executed on a standalone client (a Java SE runtime environment that is started using a java command). It accesses the server environment application from the client. However, unlike the Java EE application client, it cannot use the Java EE Dependency Injection specification or the deployment descriptor file (application-client.xml). For this reason, it is not a general purpose application, and therefore it is recommended that the Java EE application client be used instead.



Note

The API that is provided in Java EE 6 (the calling of the JNDI API or Enterprise JavaBeans) cannot be executed from an applet.

Container

The "container" is a runtime environment that provides services that manage Java EE 6 component security and transactions. Web components such as Servlet and JSP are executed in the web container. Enterprise Java Beans is executed in the EJB container. The Java EE application client is executed in the application client container.

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.

Service

The Java EE 6 components can use the various services that are provided by the container, such as the naming service, security service, and transaction service, either by executing the definition in the definition file, called the "deployment descriptor", for each Java EE 6 component, or by using Dependency Injection.

API

The Java EE 6 runtime environment provides an API that controls the behavior of the various services provided by the container, and an API that can access various external systems. The Java EE 6 component accesses the external system via an object called a "resource". By defining the resource using a tool, the resource can be accessed from the application component using the API. The API contains some of the following: JDBC, which accesses the database; a connector, which accesses the EIS; JMS, which sends/receives asynchronous messages; and JavaMail, which sends/receives messages to/from the mail server.

Tools

Interstage Java EE 6 provides various commands that are used for the configuration of settings, for example the deployment of application components, the setting of services, and the definition of resources.

Various commands

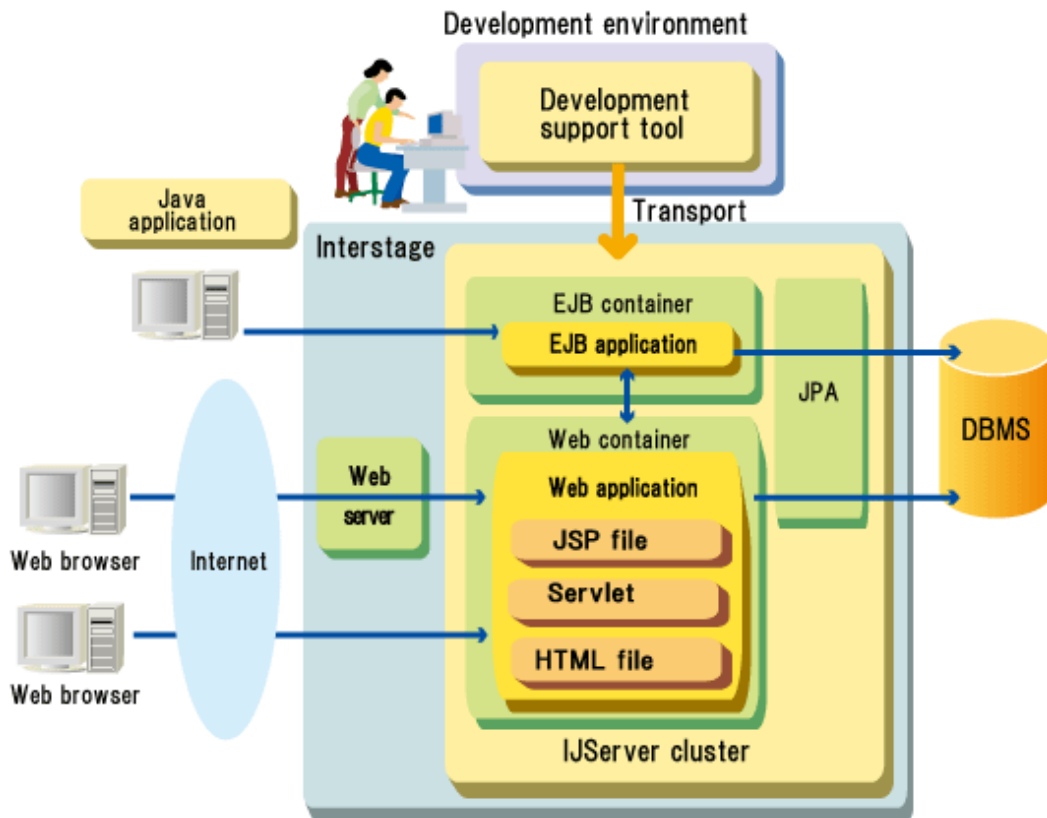
By using the various commands that are provided, such as the asadmin command, the various Java EE 6 runtime environment settings can be configured.

1.1.1 Servlet/JSP

The web container is a component that controls the execution of the web applications on the server.

A web application is comprised of web resources such as HTML files, image files, servlets, and JSP files.

HTML files and image files (static content) are controlled on the web server. In addition to this, the web container controls servlets and JSP files (dynamic content).



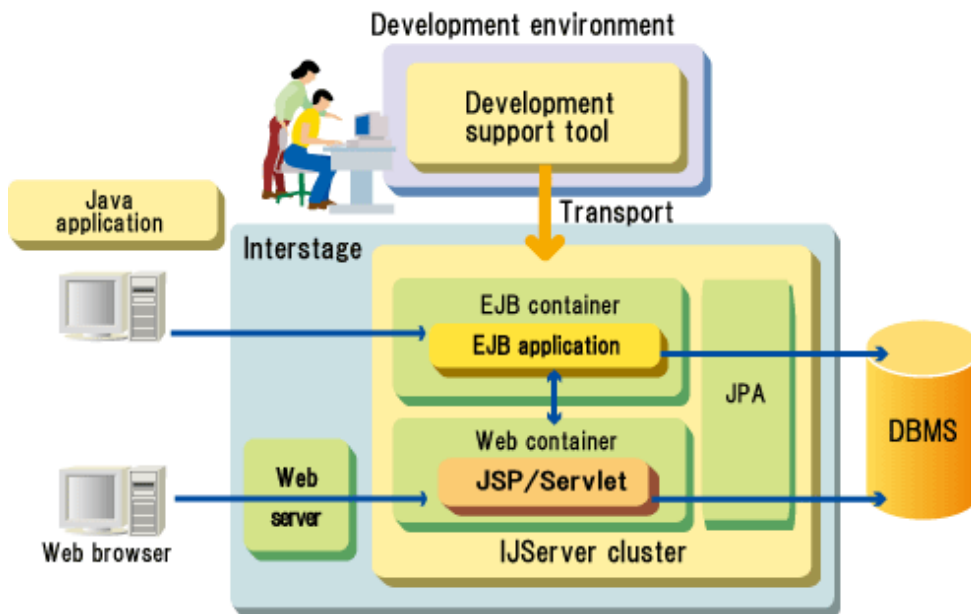
1.1.2 Enterprise JavaBeans (EJB)

Enterprise JavaBeans (referred to hereafter as "EJB") is a component architecture conforming to the EJB specifications that executes server applications. The EJB container provides transaction, security, parallel processing, remote access, delivery, conversational state management, and data persistence functions, so that the developer can concentrate on the business logic.

Servlets and Java EE application clients, for example, can be used as the client application mode.

EJB applications are developed using a development tool that supports the EJB specifications.

The following figure shows the relationship between Interstage and the EJB container.



The EJB application is comprised of components called session beans and message-driven beans, and realizes the business logic. Entities that have business data are persisted in the database using the EJB Java Persistence API. For details on the Java Persistence API, refer to "[1.1.3 Java Persistence API \(JPA\)](#)".

1.1.3 Java Persistence API (JPA)

Java Persistence API (referred to hereafter as "JPA") is a Java API that performs Java object persistence and O/R mapping with relational databases.

Java Persistence API is recommended for the persistence of business data in the relational database in the Java EE application. The business data object is called a "Java Persistence Entity", or "Entity". The Entity is not one Enterprise JavaBean or Entity Bean type. This object is a normal Java object (POJO), and there is no need to implement a specific interface. For this reason, the amount of code required for persistence has been reduced.

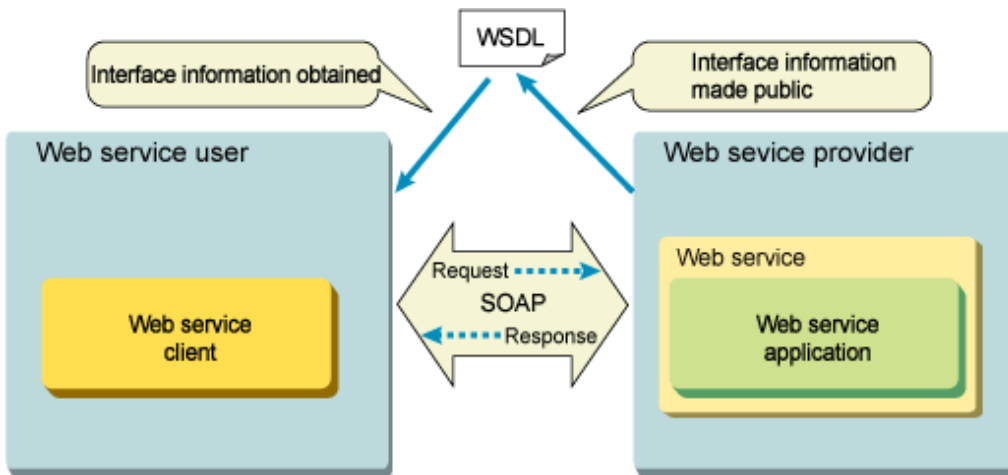
JPA can be used from the servlet, JSP, EJB application, or Java EE application client. Additionally, JPA can also run in environments in which there is no container, therefore development productivity improves because testing is performed in Java SE standalone applications. However, the behavior used in Java SE standalone applications cannot be guaranteed, therefore for business operations JPA should always be used in a container runtime environment (IJServe cluster).

1.1.4 Web Service

The web service is built so that the server program (web service application) realized using any method can be accessed via a network using Internet standard technology. SOAP is used for the communication protocol, and WSDL is used for the definition of the interface information for use (access).

When using (calling) the web service, use any method to create the client program (web service client) that will make the requests based on the interface information defined in the WSDL provided in the use destination (call destination) in SOAP.

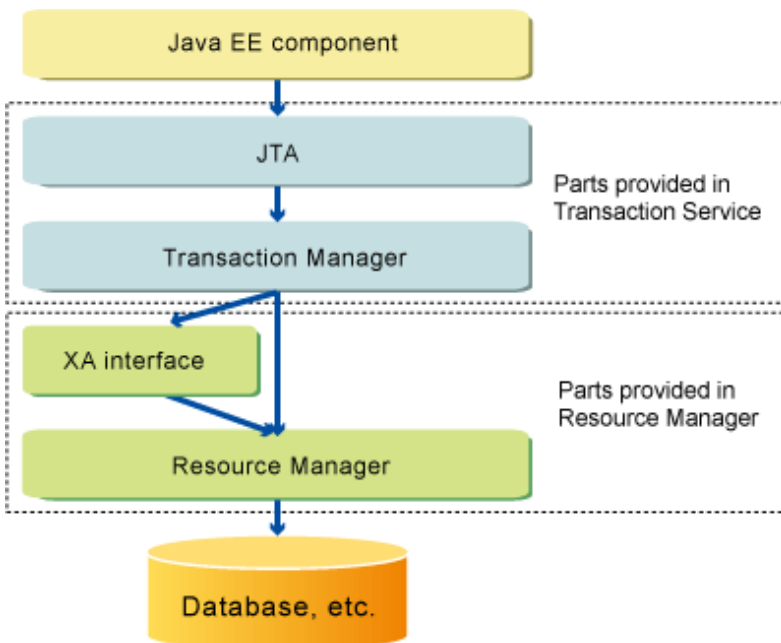
In this function, a web application or EJB application that conforms to the Web Services for Java EE specifications Version 1.2 can be implemented, and WS-I Basic Profile 1.1 is supported.



1.1.5 Transaction Service

The transaction service is a service provided to guarantee the results of data search/update for systems that manage business data.

The structure of the transaction service is shown in the figure below.



The components of the transaction service are explained below.

JTA

JTA is an interface between the Java EE 6 components and the transaction manager. The Java EE 6 components can make requests for the start and completion of a transaction to the transaction manager using JTA.

Each resource manager that manages the resources, such as database or JMS, provides a unique API that manages the transactions (for example, the commit method of the `java.sql.Connection` class). Using JTA, the transactions for each resource provided in Java EE 6 can be controlled using a common interface. Additionally, in a global transaction, multiple resources can be integrated and managed as one transaction.

Transaction manager

The transaction manager receives the requests for the start and completion of a transaction from the Java EE 6 components and performs the required actions for the resource manager.

XA interface

The XA interface defines the interface between the transaction manager and the resource manager.

Each resource manager (for example, relational database or JMS) that supports global transactions provides the XA interface. A resource that provides the XA interface is called an "XA resource". A resource that does not provide the XA interface is called a "non-XA resource".

There are also resource managers that do not support XA interfaces. For details on the support status for the XA interface, refer to the manual for the resource manager that you are using (for example, JDBC driver).

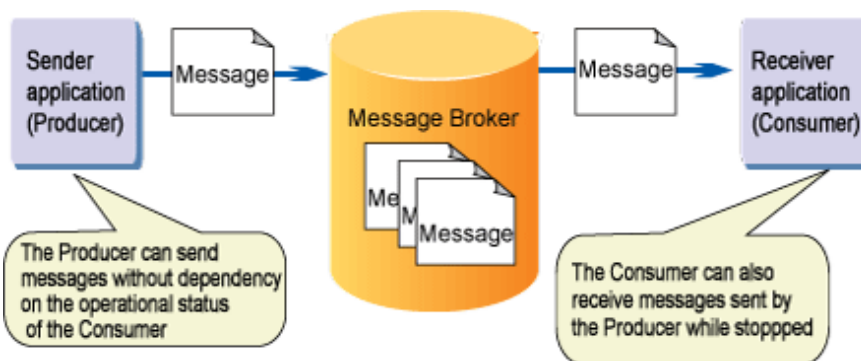
Resource manager

The resource manager manages shared resources. The three resource managers that can manage transactions in this product are as follows:

- Database/JDBC driver
- JMS provider
- Java EE Connector Architecture components

1.1.6 Java Message Service (JMS)

The Interstage Java EE 6 JMS that is provided in this product can realize message communication asynchronously using an API that is defined in the JMS specifications. The advantage of asynchronous message communication is that the sender application (the Producer) can send and receive messages without dependency on the operational status of the receiver application (the Consumer).



In Interstage JMS, a function that corresponds to the message provider defined in the JMS specifications is provided. The message provider connects to the JMS client, and receives and processes requests for sent and received messages.

Point

The terminology explained above is referred to in this manual as follows:

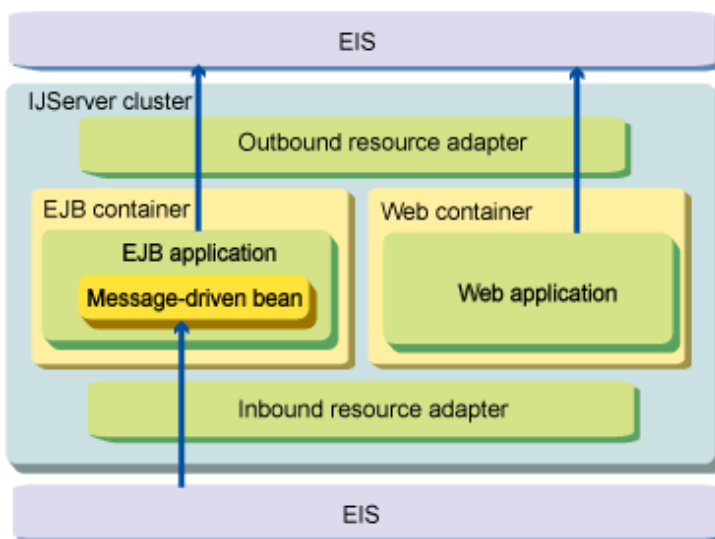
| Terminology explained above | Notation used in this manual |
|--|------------------------------|
| Interstage Java EE 6 JMS | Interstage JMS |
| Sender application | Producer |
| Receiver application | Consumer |
| Generic name for the Producer and the Consumer | JMS client |

| Terminology explained above | Notation used in this manual |
|--|------------------------------|
| Message provider that conforms to the JMS specifications | message broker |

1.1.7 Java EE Connector Architecture (Connector)

Java EE Connector Architecture (abbreviated as "connector") is an architectural specification that enables the application to interact with enterprise information systems (EISs). An application that was created according to the Java EE Connector Architecture specification is called a "resource adapter". EIS software includes various types of systems such as enterprise resource planning (ERP), mainframe transaction processing and non-relational databases. It can also prepare resource adapters for normal databases.

Because the resource adapter from the resource adapter provider conforms to the Java EE Connector Architecture specification, functions such as Interstage transaction management and security management can be used. The resource adapter is provided as a rar file (connector module), and in the same way as the war and ejb-jar modules, is included in the unit or ear module and then deployed for use in Interstage.



As resource adapter types, there is the synchronous type resource adapter that notifies the EIS of requests from the Java EE application (the outbound resource adapter), and the resource adapter that processes messages notified from the EIS asynchronously in the Java EE application (the inbound resource adapter).

1.2 Restrictions

1.2.1 Interstage Java EE 6 DAS Service Restrictions

| No. | Restriction | Action | Date of removal |
|-----|--|--------|-----------------|
| 1 | The Interstage Java EE 6 DAS service cannot be executed as a Windows service. | None. | Not determined |
| 2 | IIOP communication to a JNDI service on another server cannot be performed. | None. | Not determined |
| 3 | Do not set a port number that is bound to an IPv6 address | None. | Not determined |
| 4 | When the Bourne shell is used as the shell and the SIGINT signal is notified (by holding down the Ctrl-C | None. | Not determined |

| No. | Restriction | Action | Date of removal |
|-----|--|---|-----------------|
| | keys) to the shell that performs the Interstage Java EE 6 DAS service start processing, the Interstage Java EE 6 DAS service process crashes. | | |
| 5 | <p>If an Interstage Java EE 6 DAS service is started in an environment in which the IP address cannot be resolved from the host name, the message shown below may sometimes be output, even though there is not a process that has opened the same port number as the operation management HTTP listener.</p> <p>"There is a process already using the admin port {0} -- it probably is another instance of a GlassFish server."</p> | Define the host name and IP address of the machine in the hosts file. | Not determined |

1.2.2 Application Operations Restrictions

| No. | Restriction | Action | Date of removal |
|-----|--|--|-----------------|
| 1 | <p>If all the conditions below are satisfied, then "HTTP Status 405" is displayed in the web browser and the request send fails.</p> <ol style="list-style-type: none"> 1. The Java EE 6 security function is used in a web application, and 2. There is FORM authentication, and 3. Only POST was specified for <http-method> in the web application deployment descriptor (web.xml), and 4. An HTTP POST request is sent to the web application in 1. above, for which the content for the setting in 3. above is enabled, and 5. 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 the 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"> 1. The Java EE 6 security function is used in a web application, and 2. There is FORM authentication, and 3. 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() 4. An HTTP POST request is sent to the web application in 1. above, and 5. There was transition from the FORM authentication window to the intended content | 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 | Action | Date of removal |
|-----|---|--|-----------------|
| 3 | On the default error page, multibyte characters that are contained in the message cannot be displayed correctly. | For details on the message, refer to the server log. | Not determined |
| 4 | If the response character code returned to the client in the web application is not standardized, the characters may appear garbled. | Standardize the character code. | Not determined |
| 5 | JSP precompile is not provided. | None. | Not determined |
| 6 | If using JSP, you cannot add the plus sign "+" to the path of the directory where the Java EE 6 common directory and JSP compile results are stored. | Do not include "+" in the path. | Not determined |
| 7 | Cluster service linkage is not provided. | If cluster service linkage is required, use the Interstage Java EE 5 functions that are installed as standard. | Not determined |
| 13 | A GUI (Management Console) is not provided to perform operations. | Use the asadmin command. | Not determined |
| 9 | IIOP access log is not output. | None. | Not determined |
| 10 | You cannot include the connection processing time to determine timeouts using the IIOP connection wait time monitoring feature. | None. | Not determined |
| 11 | IIOP communication client non-communication monitoring feature is not supported. | None. | Not determined |
| 12 | CORBA service application calls from Java EE applications are not supported. | None. | Not determined |
| 13 | IIOP client authentication is not supported. | None. | Not determined |
| 14 | If operations are configured to go through the web server, SSL communication between the web server and the web container is not supported. | None. | Not determined |
| 15 | If operations are configured to go through the web server, operations on the web server connector are not supported in an IPv6 environment. Do not specify port numbers that will be bound to IPv6 addresses. | None. | Not determined |
| 16 | If operations are configured to go through the web server, null will always be returned on executing ServletRequest#getAttribute("javax.servlet.request.ssl_session_id) in the web application. | None. | Not determined |
| 17 | Monitoring and logging is not provided. | None. | Not determined |
| 18 | In the IJServer cluster, if the property for time monitoring function, which is used for IIOP communications, contains an incorrect value, timeout is issued by IIOP communication server method recovery time monitoring. Note that if this problem occurs, IOP00410219 will be notified to the client application. | Refer to the server log and correct the invalid settings, and then restart the IJServer cluster. | Not determined |
| 19 | If all attempts to connect to the server fail due to the IIOP connection wait time monitoring, the number of | None. | Not determined |

| No. | Restriction | Action | Date of removal |
|-----|---|---|-----------------|
| | connection attempts after that will not reach the expected number. | | |
| 20 | <p>If packet data is being retained due to network delays and insufficient TCP buffering, writing the request data (reply data) may fail. When this happens, timeout will be detected before the IOP communication socket send/receive wait time is reached.</p> <p>Note that IOP00410225 will be notified to the system where this occurred.</p> | None. | Not determined |
| 21 | <p>If the IP address given below cannot resolve the name on the DNS server, the initial lookup process from the client (processing to retrieve the object reference of the EJB application) will be delayed.</p> <ul style="list-style-type: none"> - Connection destination information set by the client application - Network address for the IOP listener at the connection destination (Note) <p>The delay time depends on the network environment, but it is approximately 4 seconds.</p> <p>Note) The IP address is also used internally if "0.0.0.0" is specified as the network address.</p> | Review the hosts file or the DNS settings, and take action so that the relevant IP address can resolve the name. | Not determined |
| 22 | <p>If the following conditions are met, timeout is issued by IOP communication server method recovery time monitoring.</p> <p>Note that if this problem occurs, IOP00410219 will be notified to the client application.</p> <ol style="list-style-type: none"> 1. The number of connections from the client application equals the number specified in the ORB total connection count. 2. All connections managed by the IJServer cluster are in use (processing requests). 3. Client applications in other processes are communicating with IJServer clusters. | Estimate the ORB total connection count correctly, so that not all connections managed by the IJServer cluster are used at the same time. | Not determined |
| 23 | The message broker access log is not output. | None. | Not determined |
| 24 | <p>The message broker cannot be operated with Interstage client packages. Also, the following commands cannot be used:</p> <ul style="list-style-type: none"> - imqbrokerd - imqcmd - imqsvcadmin - imqusermgr | None. | Not determined |
| 25 | If using JDBC resources with "Only connections after transaction start participate" enabled, and connections that were opened outside the scope of JTA transactions are closed inside the JTA transaction scope, a RAR5031 error will occur. | Close connections outside the scope of JTA transactions. | Not determined |

| No. | Restriction | Action | Date of removal |
|-----|---|--|-----------------|
| 26 | If connecting to a database using the JDBC connection pool or JDBC resources, you cannot connect to the SQL Server using Windows authentication because authentication with user ID and password is required. | Use SQL Server authentication. | Not determined |
| 27 | You cannot lookup a JavaMail session from the life cycle module. | If you want to use JavaMail in the life cycle module, use the JavaMail API directly, and not a JavaMail session. | Not determined |
| 28 | Entity Bean operations are not supported. | None. | Not determined |
| 29 | If the "Status" of the life cycle module is changed using the set subcommand, it will not be enabled. As an alternative, change the life cycle module "Status" using the enable or disable subcommand. (Note) Note) A NullPointerException may be thrown during the execution of the enable or disable subcommand, but you can ignore it as it will have no impact on the change process. | None. | Not determined |

1.2.3 Security Functionality Restrictions



| No. | Restriction | Action | Date of removal |
|-----|--|--|-----------------|
| 1 | Only the file realm (com.sun.enterprise.security.auth.realm.file.FileRealm) is supported. | None. | Not determined |
| 2 | If the admin user password is changed by a general user, the following message is output and the attempt to change the password fails. C:\Interstage\F3FMisje6\var\domains\domain1\config\admin-keyfile (Access is Denied.) | None. | Not determined |
| 3 | The Interstage Java EE 6 function does not support SSL communication for communications between clients and EJB containers, or between clients and CORBA servers. | To use communication encryption, position the web server in DMZ, so that encryption is executed in the front-end of DMZ. | Not determined |
| 4 | The asadmin command cannot be executed with system administrator privileges if a service operator user has been changed to a user without system administrator privileges. | None. Execute the asadmin command as the service operator user. | Not determined |

1.2.4 Deployment Functionality Restrictions

| No. | Restriction | Action | Date of removal |
|-----|---|---|-----------------|
| 1 | If the following conditions are satisfied, the files and directories will still remain at the time of the undeployment: - The javax.servlet.ServletContext#getResource(String path) has been called. | After stopping the Interstage Java EE 6 DAS service or the IJServer cluster, delete the files and directories manually. | Not determined |

| No. | Restriction | Action | Date of removal |
|-----|---|--|-----------------|
| | <ul style="list-style-type: none"> - The argument path is a jar file (example: "/WEB-INF/lib/foo.jar") that exists under the WEB-INF/lib directory. | | |
| 2 | <p>If the following condition is satisfied, the jar file specified in the --libraries option cannot be deleted, even after the undeployment:</p> <ul style="list-style-type: none"> - The jar file is specified in the --libraries option when the deploy subcommand is executed. | After stopping the Interstage Java EE 6 DAS service, delete the files. | Not determined |
| 3 | <p>If characters that cannot be used are specified in the application name in the application deployment, one of the messages shown below is output and the deployment may fail.</p> <p>Note: For details on which characters can be used in the application name, refer to "7.4 Application-related Definition Items".</p> <p>At this time, the application material may still remain.</p> <ul style="list-style-type: none"> - remote failure: Error occurred during deployment: null. Please see server.log for more details. - remote failure: Error occurred during deployment: Application name [Specified application name] is already in use. Please pick a different name. Please see server.log for more details. | <p>After the following material was deleted manually, restart the Interstage Java EE 6 DAS service.</p> <p>Windows32/64</p> <p>[Java EE 6 common directory]\domains\domain1\applications_internal\[Specified application name]</p> <p>[Java EE 6 common directory]\domains\domain1\generated\ejb\[Specified application name]</p> <p>[Java EE 6 common directory]\domains\domain1\generated\jsp\[Specified application name]</p> <p>[Java EE 6 common directory]\domains\domain1\generated\policy\[Specified application name]</p> <p>[Java EE 6 common directory]\domains\domain1\generated\xml\[Specified application name]</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE 6 common directory]/domains/domain1/applications/_internal/[Specified application name]</p> <p>[Java EE 6 common directory]/domains/domain1/generated/ejb/[Specified application name]</p> <p>[Java EE 6 common directory]/domains/domain1/generated/jsp/[Specified application name]</p> <p>[Java EE 6 common directory]/domains/domain1/generated/policy/[Specified application name]</p> <p>[Java EE 6 common directory]/domains/domain1/generated/xml/[Specified application name]</p> | Not determined |
| 4 | Applications with the same name cannot be deployed to multiple IIServer clusters. Also, applications with the same name cannot be deployed to the Interstage Java EE 6 DAS service or IIServer clusters. | Specify a different application name using the --name option of the deploy subcommand. | Not determined |

1.2.5 asadmin Command Execution Restrictions

| No. | Restriction | Action | Date of removal |
|-----|--|--|-----------------|
| 1 | When the list-domains subcommand is executed, the following operation status may sometimes be obtained: - "running, restart required to apply configuration changes" | Read this as "running". When the settings are changed, check whether any of the definitions are required for the restart before executing the operation. | Not determined |
| 2 | The following list-connector-security-maps subcommand options are not supported: - --verbose | If the security map detailed information shown below is required, specify the corresponding definition in the get subcommand before obtaining the value. - Principal - User group - Backend Principal user name - Backend Principal password | Not determined |
| 3 | If the value is omitted from the set subcommand (only the definition name and "=" are specified), the default value may not always be set. | This value must be specified in the set subcommand. | Not determined |
| 4 | When the asadmin subcommand is executed, it is sometimes possible to set a value outside the supported range in the option or operand. | Refer to the range defined in " Chapter 7 List of Definition Items ", and specify the option and operand values. | Not determined |
| 5 | Even after executing the delete-resource-ref subcommand, the relevant resources are available on the specified targets. | After executing the delete-resource-ref subcommand, restart the specified target. | Not determined |
| 6 | Multibyte characters cannot be included in values for definition items specified by the asadmin command. | None. | Not determined |
| 7 | The following message maybe output when the deploy subcommand is executed: Please use create-application-ref command to create application reference on target server. | Note that the create-application-ref subcommand cannot be used. Either undeploy any deployed applications with the same name using the undeploy subcommand, or specify a different application name using the --name option of the deploy subcommand. | Not determined |
| 8 | Subcommands that are not described in " 9.1.1 List of Subcommands of the asadmin Command " may be included in messages. Also, options and operands that are not described in " 9.1 asadmin " may be included in messages. | Subcommands that are not described in " 9.1.1 List of Subcommands of the asadmin Command " cannot be used. Also, options and operands that are not described in " 9.1 asadmin " cannot be used. | Not determined |
| 9 |  Users who do not have system administrator privileges for the operating system cannot execute the asadmin command. | None. Log in as system administrator for the operating system to execute the asadmin command. | Not determined |
| 10 |  If you create IJServer clusters or server instances with the same name, regardless of the uppercase or lowercase characters used, the already existing IJServer clusters or server instances may behave unexpectedly. | You should not create IJServer clusters or server instances with the same name, regardless of the uppercase or lowercase characters used. | Not determined |

| No. | Restriction | Action | Date of removal |
|-----|--|---|-----------------|
| | | Also, if you are creating a new IJServer cluster or server instance, backup the environment beforehand. | |
| 11 | <p>Windows32/64</p> <p>If you deploy applications with the same name, regardless of the uppercase or lowercase characters used, the already existing and deployed applications may behave unexpectedly.</p> | <p>You should not deploy applications with the same name, regardless of the uppercase or lowercase characters used.</p> <p>Also, if you are deploying a new application, backup the environment beforehand.</p> | Not determined |

1.2.6 Web Server Linkage Restrictions

| No. | Restriction | Action | Date of removal |
|-----|--|---|-----------------|
| 1 | <p>Windows32 Linux64</p> <p>You cannot use the asadmin command when setting web server linkages. As a result, the following subcommands cannot be used:</p> <ul style="list-style-type: none"> - create-web-server-ref subcommand - delete-web-server-ref subcommand - list-web-server-refs subcommand - create-virtual-host-ref subcommand - delete-virtual-host-ref subcommand - list-virtual-host-refs subcommand - update-web-server-connector-config subcommand - show-web-server-connector-config subcommand | <p>When operating the web server and the IJServer cluster on the same machine, use the wscadmin command corresponding to the asadmin command when setting web server linkages. For details on the procedure, refer to "4.7.3.2 Operating the Web Server and the IJServer Cluster on Different Machines".</p> <p>For details on the relationship between the asadmin command and the wscadmin command, refer to "4.7.3 Linkage Settings for the Web Server and the IJServer Cluster".</p> <p>To modify linkage settings such as adding or deleting server instances and applications, or changing IP addresses and port numbers, use the wscadmin command after the linkage settings have been configured.</p> | Not determined |
| 2 | <p>Windows32 Linux64</p> <p>Settings for the web server connector log output cannot be configured. As a result, the following subcommand of the wscadmin command cannot be used:</p> <ul style="list-style-type: none"> - update-log-config subcommand | <p>None.</p> <p>Web server connector logs are output according to the "Configuration when created value" in "9.14.1 create-env Subcommand".</p> | Not determined |
| 3 | <p>Windows32 Linux64</p> <p>The web server connector fault monitoring cannot be used. As a result, the following subcommand of the wscadmin command cannot be used:</p> <ul style="list-style-type: none"> - update-fault-monitor-config subcommand | <p>None.</p> | Not determined |

1.2.7 Other Restrictions

| No. | Restriction | Action | Date of removal |
|-----|---|---|-----------------|
| 1 | <p>Windows32/64 Solaris32 Linux32/64</p> | <p>Windows32/64 Solaris32 Linux32/64</p> <p>Use the sample applications provided in Java EE, instead of the deployment resources in the locations referred to in</p> | Not determined |

| No. | Restriction | Action | Date of removal |
|-----|--|--|-----------------|
| | The sample applications used in " Chapter 13 Tutorial " are not included in the product package. | " Chapter 13 Tutorial ". For details on the Java EE sample application locations, refer to "Samples" - "Java EE Samples" in the Java EE Operator's Guide. A number of changes will, however, be required. For details, refer to " Procedure for changing the samples ". | |

Procedure for changing the samples

Perform the changes shown below before using the samples.

1. Copy 'account.ear' from the Java EE sample application location to any directory, and then decompress 'account.war' from this file.
2. Change the following files:

[persistence.xml]

persistence tag

- version="2.0"

- xsi:schemaLocation="http://java.sun.com/xml/ns/persistence http://java.sun.com/xml/ns/persistence/persistence_2_0.xsd"

property tag

- name="eclipselink.ddl-generation"

[web.xml]

web-app tag

- version="3.0"

- xsi:schemaLocation="http://java.sun.com/xml/ns/javaee http://java.sun.com/xml/ns/javaee/web-app_3_0.xsd"

[faces-config.xml]

faces-config tag

- version="2.0"

- xsi:schemaLocation="http://java.sun.com/xml/ns/javaee http://java.sun.com/xml/ns/javaee/web-facesconfig_2_0.xsd"

3. Execute the command shown below.

In the example below, the samples are edited under C:\work or /work. Change this directory as required, and then execute the command.

Windows32/64

```
cd C:\work\account\account
jar -cvf ..\account.war *
cd ..
jar -cvf ..\account.ear META-INF account.war
```

Solaris32 Linux32/64

```
cd /work/account/account
jar -cvf ../account.war *
cd ..
jar -cvf ../account.ear META-INF account.war
```

1.3 Notes on Interstage Operation

This section contains notes on using Interstage Java EE 6.

1.3.1 Notes About Deployment

The following notes are provided below.

- [Notes About HotDeploy](#)
- [Notes About Deploying Web Applications](#)
- [Notes About Redeploying a Resource Adapter](#)
- [Notes on the String Specified for the Library \(the --libraries option\)](#)
- [Notes on Application File Names](#)
- [Notes on Executing Multiple Operations](#)

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 EJB application, the following message may be output to the server log.
EJB6145
 - 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.IllegalStateException` will be thrown.
WEB9031
- 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`
- When HotDeploy of the WAR file containing the EJB client is executed, `javax.naming.NamingException` occurs and the server application cannot be called. For this reason, HotDeploy of the WAR file containing the EJB client should not be executed.

Notes About Deploying Web Applications

One context root cannot be used to deploy more than one web application - WSC04122 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.

For details on WSC04122, refer to "[10.42 Messages that Contain "WSC" in the Message ID](#)".

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 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 Executing Multiple Operations

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

1.3.2 Notes About Web Applications

The following notes are provided below.

- [Notes About Sessions](#)
- [Character Encoding](#)
- [Cookies](#)
- [Cross-site Scripting Vulnerability](#)
- [Errors and Exceptions](#)
- [Error Pages](#)
- [Switching JSP](#)
- [ServletContext and ServletRequest Attributes](#)

Notes About Sessions

Session IDs

Regarding the session ID, the scope (of the unique constraints), number of digits, characters that can be used, and format, may be changed by upgrading or applying hot fixes for this product.

For this reason, it is not recommended that you use an application that depends on these items or a session ID that is outside the range of the web application.

For example, if the session ID is registered in a database, a version upgrade of this product may cause an overflow in the numbers of digits.

Additionally, maintain the validity or uniqueness of the request or user by using a method that does not depend only on the session ID.

Session Cookies

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

Do not perform actions such as adding session 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 session Cookie.

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 "[3.2.1.2 Interstage Web application deployment descriptor \(glassfish-web.xml\)](#)" - ".[cookie-properties \(parent tag :session-config\)](#)".

Character Encoding

Character Encoding Identified by the Web Browser

Generally, the web browser identifies character encoding in the following order:

1. Character encoding specified in the Servlet/JSP `ContentType` header 'charset' attribute of the http response.
2. In HTML, character encoding specified in the `<meta>` tag

The character encoding 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.

For Servlet/JSP, set the `ContentType` header in the http response. For HTML files, set the `<meta>` tag.

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

Character Encoding Used to Read Requests from the Web Browser

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

Specifying with a Servlet API

Specify the character encoding 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 glassfish-web.xml

Specify the character encoding using the `glassfish-web.xml` `<parameter-encoding>` tag.

For details on how to define the character encoding, refer to "[3.2.1.2 Interstage Web application deployment descriptor \(glassfish-web.xml\)](#)".



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 Encoding

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

- The JSP file character encoding
- The character encoding 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

Refer to "Action for Garbled Characters in the Java EE Application" in the "Troubleshooting" chapter of the Java EE Operator's Guide.

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 is 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. Additionally, if the error handling in the application is inappropriate for the Error/Exception that is not processed (not caught) in the servlet or JSP, the default error page of the web container will be displayed.

Error Pages

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

Microsoft(R) 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

When the JSP auto-reload feature is used, the JSP compile will be executed if the timestamp of the file that is included statically is more recent than the time that the previous JSP compile was performed.

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.

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.

1.3.3 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 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 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.

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.

1.3.4 Notes on the Java EE 6 Password

The guidelines for the Java EE 6 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

- Note that if the recommended characters or number of characters are not used, then authentication may not be performed correctly.
 - A password that does not meet the above recommendations may be set, however this is extremely risky because it will be comparatively easy for another person to guess the password and try to use it. Additionally, an attacker may have prepared a special program for a dictionary or brute force attack. For this reason, it is strongly recommended that you set a password that meets the above recommendations.
-

1.3.5 Notes on Log File Rotation

The various Interstage Java EE 6 log files are managed by a product feature. For this reason, do not perform log rotation using another feature.

1.3.6 Notes on Executing the asadmin Command

When there is a user or password prompt at the time that the subcommand is executed, `java.lang.NullPointerException` may occur if Ctrl-C is pressed. For this reason, do not press Ctrl-C if there is a user or password prompt.

1.3.7 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.

1.3.8 Notes About JPA

Note the following when using JPA.

- 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 6 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 either condition below is met, JPA will connect to the database when the application is deployed. Note that you will need to configure the JDBC environment settings before deploying the application to the IJServer cluster or Interstage Java EE 6 DAS service. For details, refer to "[4.14.1 Setting the JDBC Driver Environment](#)".
 - Condition 1
 - <jta-data-source> or <non-jta-data-source> is specified in <persistence-unit> of the deployment descriptor (persistence.xml), and
 - The EntityManagerFactory instance is obtained using @PersistenceUnit in the application
 - Condition 2
 - The primary key value automatic generation feature is used

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

- For details on supported databases, refer to "[F.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, but the TABLE_PER_CLASS option cannot be used.
- If the database is searched using Native Query, when the Interstage persistence provider encapsulates the search result as an object, the case (upper/lower) of the entity class attribute and the table column name will not match, therefore an error may occur. In this case, set eclipselink.jpa.uppercase-column-names to "true".
- Some DBMS restrictions apply and the following functionalities cannot be used. If 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. The following describes some of the functionalities that cannot be used due to DBMS restrictions:

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.
- 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 Pessimistic Locking cannot be used.
- 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. To specify a reserved word in Symfoware for the table attribute, enclose it in double quotation marks.

When SQL Server is used, note the following:

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

1.3.9 Notes on the Connector Function

Note the following when using the connector function.

Calling the ManagedConnectionFactory setLogWriter() Method

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

- The default connection pool allocated for the resource adapter.(Note)
- All connector connection pools created by the user.

Note) The default connection pool is reserved by the system, therefore it cannot be used.

1.3.10 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). To ensure compatible connectivity, the use of SOAP1.2 is not recommended.

1.3.11 Notes on Context and Dependency Injection (CDI)

Note the following points when using CDI.

Applications that use CDI

CDI cannot be used with Java EE application clients or with Java SE standalone applications.

Using `javax.enterprise.context.Conversation#setTimeout(java.lang.Long)`

Do not specify a value greater than 2147483647 for the timeout value set in the argument.

1.3.12 Notes on Access Privileges for the Resource when the Service Operator User was Changed

If the service operator user was changed in "`ij6setoperatorid`", for directories and files other than the Java EE 6 common directory specified for the operation or definition item, set appropriate read permissions to enable the user specified as the service operator user to reference the directories and files.

Write permissions must also be granted to the service operator user for the resources shown below.

- Log output directory
 - Server log: "`Log output directory`"
 - HTTP access log: "`Log output directory`"
 - HTTP trace log: "`Log output directory for trace log`"
- "`Session storage location`"
- "`Transaction log location`"
- "`Java DB System Directory`"

In addition to the above, configure the owner group as the service operator user primary group for the resources under the Java EE 6 common directory.

1.3.13 Notes Related to Date/Time

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 "4.17 Java EE Application Logs".

1.3.14 Notes on the Temporary File

Temporary file that is created

In Java EE 6, the temporary file shown below is created.

| | |
|--------------------------|---|
| File name | gendContent*.zip ("*" can be any string) |
| Directory created | <p>Windows32/64</p> <p>Directory in which the "java.io.tmpdir" system property specified in the Interstage Java EE 6 DAS service is specified</p> <p>Solaris32/64 Linux32/64 /tmp</p> |
| Timing used for creation | When the application is deployed |
| Timing used for deletion | When the Interstage Java EE 6 DAS service stops |

| | |
|--------------------------|---|
| Directory name | fileinstall-* ("*" can be any string) |
| Directory created | <p>Windows32/64</p> <p>Directory in which the "java.io.tmpdir" system property specified in the Interstage Java EE 6 DAS service is specified</p> <p>Solaris32/64 Linux32/64 /tmp</p> |
| Timing used for creation | When the Interstage Java EE 6 DAS service or server instance starts |
| Timing used for deletion | When the Interstage Java EE 6 DAS service or server instance stops |

How to delete the temporary file

If the temporary file remains as a result of the Interstage Java EE 6 DAS service or server instance abending, delete it using the following method:

1. Stop the Interstage Java EE 6 DAS service and all server instances.
2. Move the directory in which the temporary file was created.
3. Delete the temporary file or directory.

Windows32/64

Obtain the "java.io.tmpdir" system property using the jinfo command. For details on the jinfo command, refer to "JDK/JRE Tuning" - "Basic Knowledge" - "JDK Documentation" in the Tuning Guide.



Example

Using the JDK7 jinfo command to obtain the "java.io.tmpdir" system property that is specified in the Interstage Java EE 6 DAS service

```
C:\Interstage\JDK7\bin\jinfo.exe <Interstage Java EE 6 DAS service PID> | find "java.io.tmpdir"
```

1.3.15 Notes on Using Security Manager

Security Manager can be used in the following functions:

| Function | Can Security Manager be used? | Can the policy file be edited? |
|----------------------------|-------------------------------|--------------------------------|
| Java EE 6 IJServer cluster | Yes | No |
| Java EE 6 client container | No | - |

Yes: Supported

No: Not supported

-: Not applicable, because Security Manager is not supported

Chapter 2 Functionality Provided in the Java EE Application Runtime Environment

This chapter describes functionality provided in the Java EE application runtime environment.

2.1 Overall Configurations

This section explains the environment required for running Interstage Java EE 6.

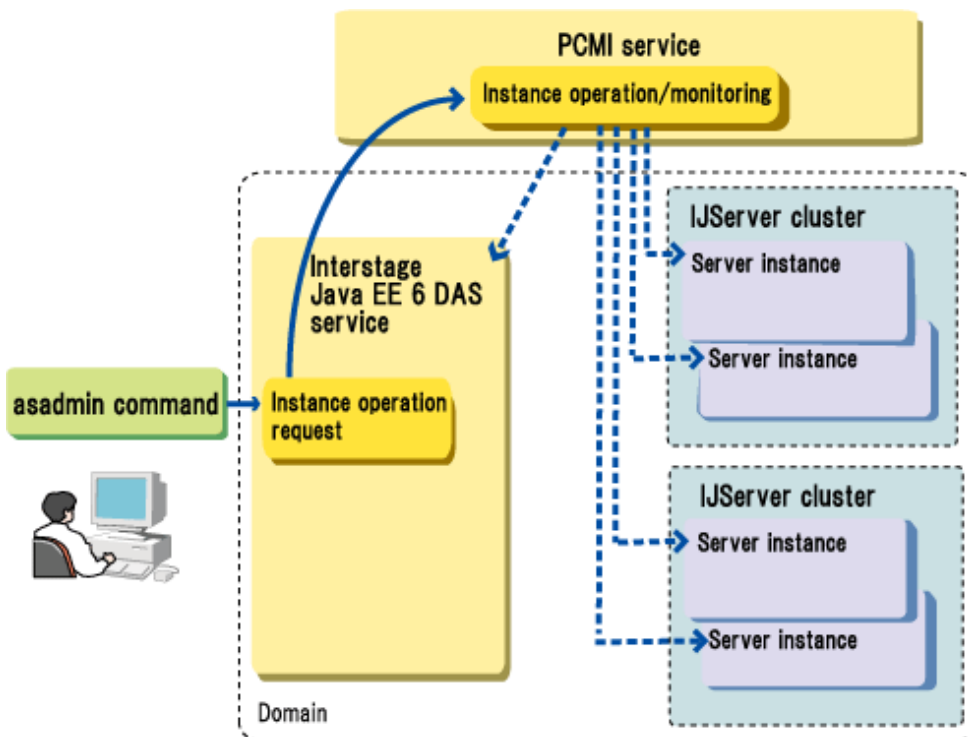
2.1.1 Interstage Java EE 6 Operating Environment

The Java EE 6 Runtime Environment provides the IJServer cluster and a series of operation commands as an application operating environment. This environment provides multiprocess configurations, process monitoring, and a recovery function following errors. If these are used, it is easy for the user to build a high-reliability application operating environment.

As shown in the figure below, Java EE 6 IJServer cluster operations can be performed using the asadmin command. When an IJServer cluster operation is performed using this command, the operation request is sent to the PCMI service, and the server instance of the Java VM that is used to run the user application is started/stopped.

The PCMI service monitors the Interstage Java EE 6 DAS service and server instances. If an error occurs in the Interstage Java EE 6 DAS service or server instance, an appropriate action will be performed, for example the output of a message, or recovery.

The Java EE 6 IJServer cluster operation is performed via the Interstage Java EE 6 DAS service/PCMI service. For this reason, to perform Java EE 6 IJServer cluster operations, the Interstage Java EE 6 DAS service/PCMI service must be running.



The elements in this figure are explained below.

asadmin command

This accepts the command operations.

PCMI service

This service manages the Interstage Java EE 6 DAS service and server instances. It starts, stops, and monitors the Interstage Java EE 6 DAS service and server instances.

Interstage Java EE 6 DAS service

This service performs Interstage Java EE 6 operation management. It receives the requests for operations from the asadmin command.

IJServer cluster

This is an operational unit for server instance operations. Operations such as start/stop server instance, change definition, and deploy application are performed for each IJServer cluster separately. Standalone server instances can also be started and stopped.

Server instance

This is the Java VM that runs the application on the IJServer cluster.

Domain

This is a group of Interstage Java EE 6 DAS services/server instances/IJServer clusters.

2.1.2 JDK/JRE used by Java EE 6

JDK, which is selected at the time of the installation, is enabled in all Java EE 6 operating environment services and components. If you want to change JDK (in the client package, this is JDK or JRE) that is used by Java EE 6 after the installation, reinstall Java EE 6. For details on the reinstallation method, refer to the Installation Guide.

2.1.3 Java EE 6 Common Directory

The PCMI service, IJServer cluster, and Interstage Java EE 6 DAS service resources are stored under the Java EE 6 common directory.

Windows32/64

C:\Interstage\F3FMisje6\var (when installed in C:\Interstage)

Solaris32/64 Linux32/64

/var/opt/FJSVisje6

The following directories are created under the Java EE 6 common directory.

Windows32/64

| | |
|---|--|
| domains\domain1 | Files used by the Interstage Java EE 6 DAS service |
| nodes\localhost-domain1 | Files used by the server instance |
| pcmi\isje6 | Files used by the PCMI service |
| pcmi\isje6\logs\<server instance name> pcmi\isje6\current\<server instance name> | Files used by the IJServer cluster (Note 1) |
| commands | Files used by the Java EE 6 operation commands |

Solaris32/64 Linux32/64

| | |
|-------------------------|--|
| domains/domain1 | Files used by the Interstage Java EE 6 DAS service |
| nodes/localhost-domain1 | Files used by the server instance |
| pcmi/isje6 | Files used by the PCMI service |

| | |
|---|--|
| pcmi/isje6/logs/<server instance name> pcmi/isje6/current/<server instance name> | Files used by the IJServer cluster (Note 1) |
| commands | Files used by the Java EE 6 operation commands |

Note 1)

For details on the file configuration used by the IJServer cluster, refer to "2.4.1 IJServer Cluster File Configuration".



The directory specified as the Java EE 6 common directory when Java EE 6 is installed can contain the following:

Windows32/64

- Alphanumeric characters
- Path delimiters
- Plus signs ("+")
- Hyphens ("-")
- At signs ("@")
- Periods (".")
- Underscores ("_")
- Apostrophes ("'")
- Round brackets ("()")

Solaris32/64 Linux32/64

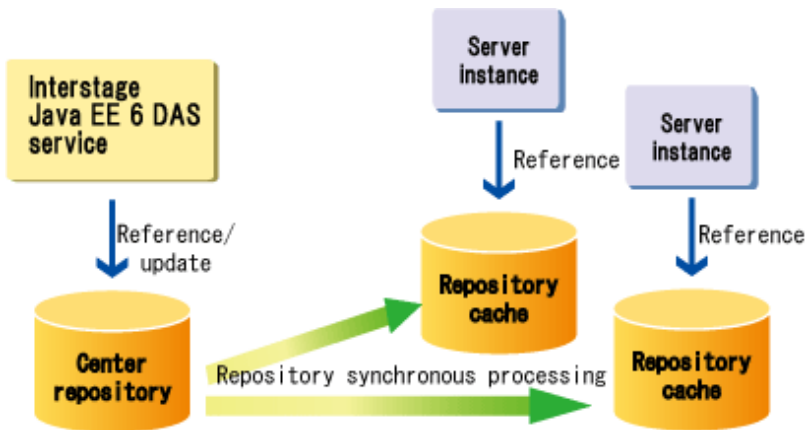
- Alphanumeric characters
- Path delimiters
- Plus signs ("+")
- Hyphens ("-")
- At signs ("@")
- Periods (".")
- Underscores ("_")

2.1.4 Repository Synchronization

In the Java EE 6 environment, the Interstage Java EE DAS 6 service concentrically manages the resources required to execute the server instances.

Accordingly, the maintenance of 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 6 environment.



Server instances refer to the repository cache definition information and resources before running.

In repository synchronous processing, the definition information required to execute 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 server instances. The center repository is comprised of the following data:

- domain.xml
- Definition information(except domain.xml)
- Libraries used (.jar files) or classes (.class files) in the domain/server instance setting in "[2.22.4 Settings for classes used in Interstage Java EE 6](#)".
- Deployed applications
- Files generated for the application (such as EJB stubs)

Repository cache

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

The triggers and targets for repository cache synchronous processing are as follows:

| Trigger | Synchronous target | Description |
|---|--|--|
| Starting the IJServer cluster or server instances | All center repository resources | If domain.xml has been updated, it will be synchronized. If domain.xml has not been updated, synchronize this file manually. |
| Deployment of the IJServer cluster or server instance that is running (HotDeploy) | domain.xml Deployed applications Files generated for the application (such as EJB stubs) | |
| When the asadmin subcommand is executed | asadmin subcommand update target files (domain.xml, definition information) | For details on the subcommands in which synchronization is performed, refer to the notes on the subcommand and " Notes on the asadmin command ". |

Manual synchronization

After changing the last updated datetime of domain.xml, the file can be synchronized by starting the IJServer cluster or server instance.

Windows32/64

In Notepad, open C:\Interstage\F3FMisje6\var\domains\domain1\config\domain.xml (when domain.xml has been installed in C:\Interstage) to save the file.

Alternatively, execute the following command:

```
cd C:\Interstage\F3FMisje6\var\domains\domain1\config
copy domain.xml +
```

Solaris32/64 Linux32/64

Use the touch command.

```
touch /opt/FJJSvisje6/var/domains/domain1/config/domain.xml
```



Note

If the center repository resources were updated in the absence of any domain.xml update, for example the keystore or truststore were updated using the keytool command, the domain.xml synchronization processing may not be performed when the IJServer cluster or server instance starts.

In this case, stop the IJServer cluster or server instance, and then synchronize domain.xml manually.

2.1.5 User Name and Password Used in the Java EE 6 Environment

This section explains the user name and password used in Java EE 6 operating environment operations.

For details on the security function that can be used in Java EE applications, refer to "[5.3 Java EE 6 Application Security Functionality](#)".

Interstage Java EE 6 DAS Service Authentication

Before performing Interstage Java EE 6 operations, authentication for the Interstage Java EE 6 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 "[5.2.6.1 Realm for Login Authentication](#)".

For details on how to change the password using the command, refer to "[9.1.17.1 change-admin-password Subcommand](#)".

For details on how to specify the user name and password with the asadmin command is used, refer to "[5.2.7.1 Login Authentication for the asadmin Command](#)".

2.1.6 Customizing a Service Operator User

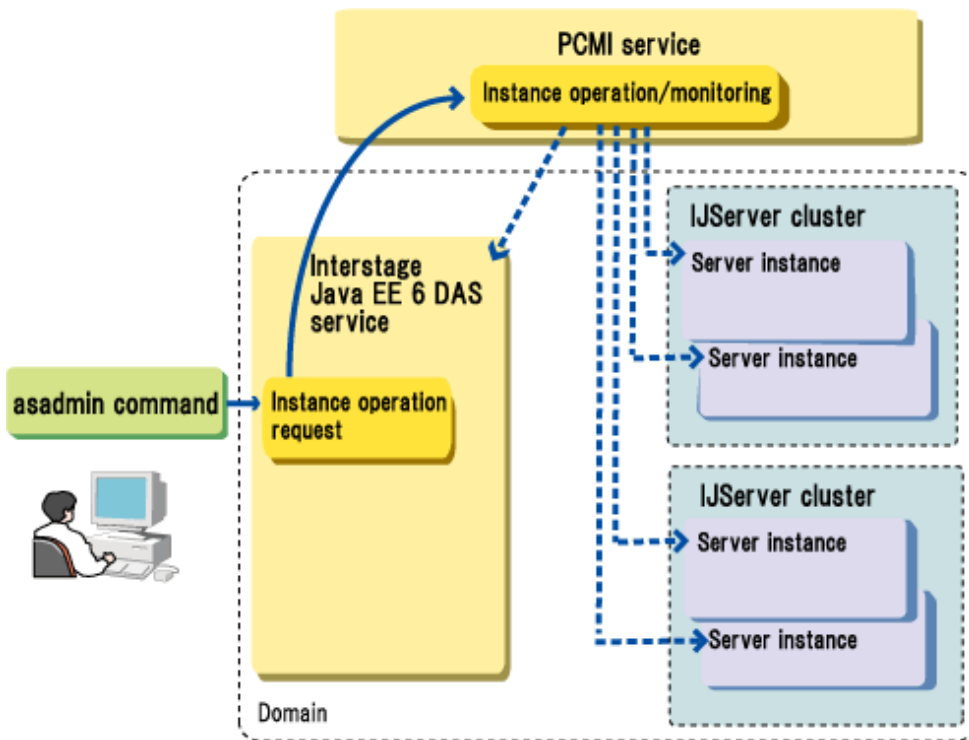
The Java VM processes below that run in the Java EE 6 operating environment are run by the system administrator user by default:

- Interstage Java EE 6 DAS service
- Server instance under the IJServer cluster
- PCMI service

The user that runs these services can be specified. For details, refer to "[5.2.3 Effective User for Processes](#)" and "[9.4 ij6setoperatorid](#)".

2.2 PCMI Service

The PCMI service is a resident process that starts, stops, and monitors Interstage Java EE 6 DAS services and server instances. If a start request is performed using the asadmin command, the Interstage Java EE 6 DAS service or server instance is started and then monitored via the PCMI service. Each server instance definition change is requested directly for each server instance that was started from the Interstage Java EE 6 DAS service.



Point

The configuration file that governs the behavior when the PCMI service monitors the Interstage Java EE 6 DAS service or each server instance is called the "PCMI profile".

Note

The asadmin command is returned without waiting for the Interstage Java EE 6 DAS service and server instance operation/monitoring processing to complete. Use the [9.13 pcmilistprocesses](#) command to check whether the start or stop of the Interstage Java EE 6 DAS service and server instance has finished.

2.2.1 Functions Provided in the PCMI Service

In the PCMI service, the following functions are provided:

- [Life-and-death Monitoring of the Java VM Process](#)
- [Keep Alive Monitoring](#)
- [Process Start Time Monitoring/Stop Time Monitoring](#)
- [Monitoring the Maximum Application Processing Time](#)
- [Java VM Log Collection](#)
- [Current Directory Management \(Create/Backup\)](#)
- [FJVM Alert Monitoring \(Java Heap/Permanent Generation Area\)](#)
- [Execution of Script When the PCMI Service Starts or Stops](#)

Life-and-death Monitoring of the Java VM Process

This monitors the Java VM information for the Interstage Java EE 6 DAS service and server instance.

When a Java VM failure is detected, the process will restart automatically after a message is output to the event log/system log.



.....
For details, refer to "[2.5.1 Life-and-death Monitoring of the Java VM Process](#)".
.....

Keep Alive Monitoring

This detects if there has been a response from the Interstage Java EE 6 DAS service or server instance within a certain period.



.....
For details, refer to "[2.5.5 Keep Alive Monitoring](#)".
.....

Process Start Time Monitoring/Stop Time Monitoring

This monitors the time until the Java VM process starts or stops completely.



.....
For details, refer to "[2.5.4 Process Start Time Monitoring/Stop Time Monitoring](#)".
.....

Monitoring the Maximum Application Processing Time

By monitoring the Maximum Application Processing Time, it is possible to detect when the application stops responding or has delayed response time.

This function is effective when called for a web application, EJB application, and message-driven beans from outside a process.



.....
For details, refer to "[2.5.3 Monitoring the Maximum Application Processing Time](#)".
.....

Java VM Log Collection

This obtains the Interstage Java EE 6 DAS service or server instance console output (standard output, standard error output) and records it in a log file.



.....
For details, refer to "[4.17.2 Java VM Log](#)".
.....

Current Directory Management (Create/Backup)

A current directory is created automatically or rotated when the server instance starts.



See

For details, refer to "[2.2.2 PCMI Service File Configuration](#)".

FJVM Alert Monitoring (Java Heap/Permanent Generation Area)

Using the predictive monitoring function, the FJVM heap usage and Permanent generation area are monitored.



See

For details, refer to "[2.5.6 Alert Monitoring](#)".

Execution of Script When the PCMI Service Starts or Stops

Execute the script created by the user when the PCMI service is started or stopped.



See

For details, refer to "[4.2.6 Exit Function during Service Startup/Stop](#)".

2.2.2 PCMI Service File Configuration

The following "PCMI instance directory" is created as the directory that stores the PCMI service management information.

Windows32/64

```
[Java EE 6 common directory]\pcmi\isje6
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/pcmi/isje6
```

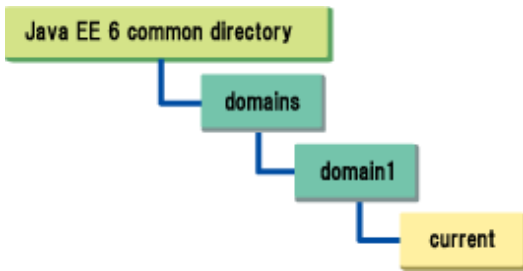
The following files are stored in the above directory:

- PCMI service definition files
- Logs that trace PCMI service processing
- Logs output by the Java VM process

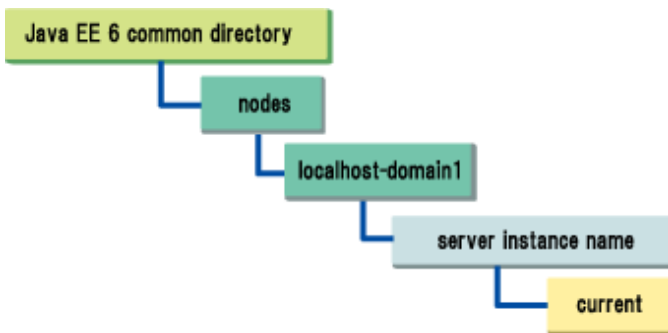
Current Directory

The Interstage Java EE 6 DAS service and server instance Java VM process current directories are created according to the following structures:

Interstage Java EE 6 DAS service current directory

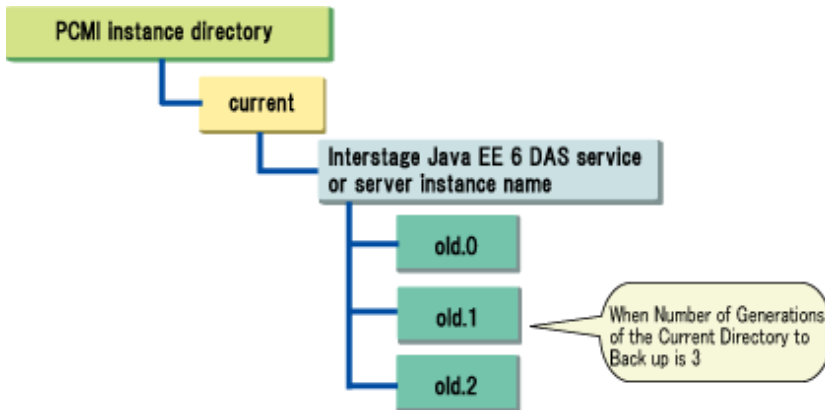


Server instance current directory



Backup destination for the current directory

The backup destination for the current directory is created according to the following configuration:



When the Interstage Java EE 6 DAS service or server instance is started, the current directory is rotated, and the previous directory is saved using the directory name "old.x (x: a sequential number starting from 0)". Current directory rotation is performed in each Interstage Java EE 6 DAS service or server instance, therefore, even if a server instance exists in the same IJServer cluster, the rotation timing may vary according to the impact of the process auto restart or partially running state.

The upper limit for the number of backup generations is set in "Number of Generations of the Current Directory to Back up" (default: 1) of the PCMI profile.

 See

- For details on how to configure the PCMI profile, refer to "6.2.1 Changing the PCMI Profile".

- For details on the PCMI service definition items, refer to "[7.1 PCMI Service Definition Items](#)".
- For details on the PCMI instance directory file structure, refer to "[B.3 PCMI Service File Configuration](#)".

2.2.3 PCMI Service Logs

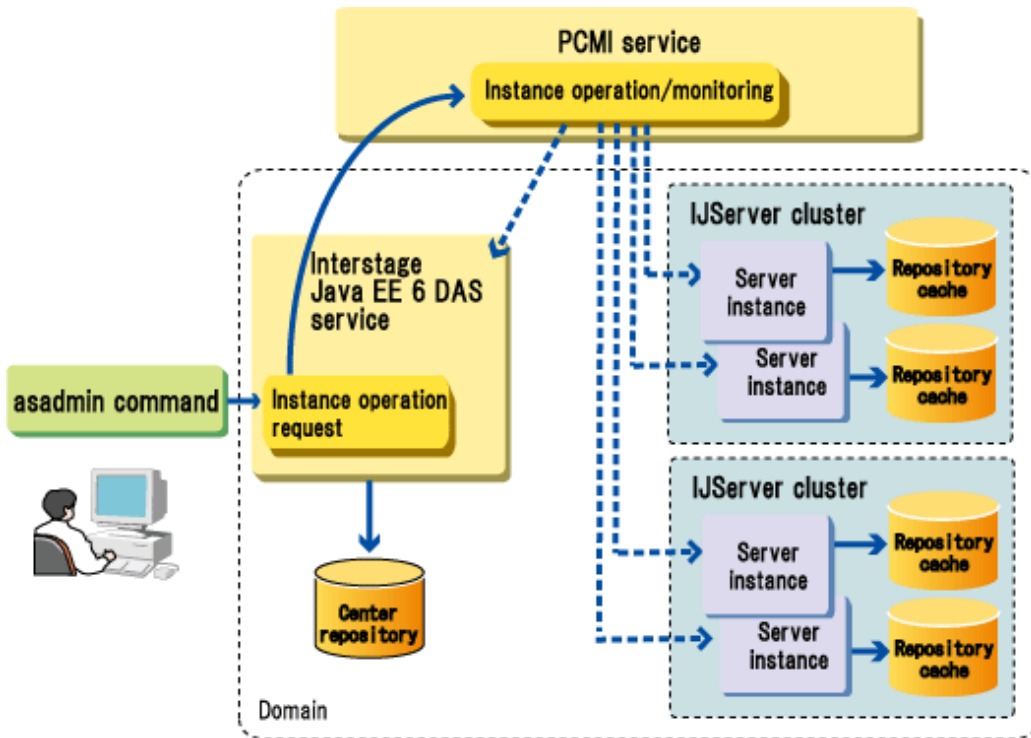
For details on the PCMI service logs, refer to "[4.17 Java EE Application Logs](#)".

2.3 Interstage Java EE 6 DAS Service

The Interstage Java EE 6 DAS service is a process that manages the Java EE 6 operating environment domain, and has the following roles:

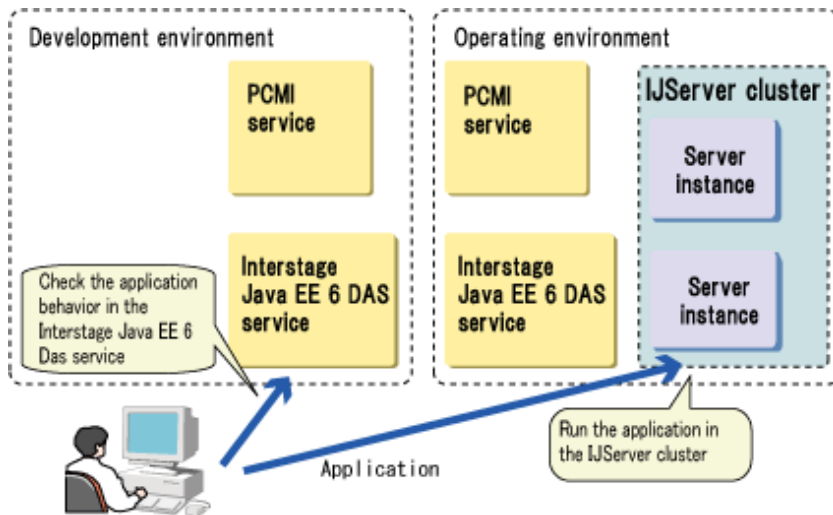
- Receive and execute asadmin command operations
- Perform user authentication when the asadmin command is used
- Managing the center repository that stores Java EE 6 environment resources

The location of the Interstage Java EE 6 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 6 DAS service.

Additionally, in development environments, applications and resources can be deployed to the Interstage Java EE 6 DAS service to confirm their behavior.



2.3.1 Interstage Java EE 6 DAS Service File Configuration

The files used by the Interstage Java EE 6 DAS service are stored in the following directories:

Windows32/64

[Java EE 6 common directory]\domains\domain1

Solaris32/64 Linux32/64

[Java EE 6 common directory]/domains/domain1

For details on the file configuration, refer to "[B.1 Interstage Java EE 6 DAS Service File Configuration](#)".

Process ID Storage File

When the Interstage Java EE 6 DAS starts, the process ID for the Java VM process of the Interstage Java EE 6 DAS service is output to the file shown below.

This file is deleted when the Interstage Java EE 6 DAS service is stopped. However, the file will remain if the Interstage Java EE 6 DAS service Java VM process has terminated abnormally.

Windows32/64

[Java EE 6 common directory]\domains\domain1\config\pid

Solaris32/64 Linux32/64

[Java EE 6 common directory]/domains/domain1/config/pid

2.3.2 Interstage Java EE 6 DAS Service Current Directory

For details on the Interstage Java EE 6 DAS service Java VM process current directory, refer to "[Current Directory](#)".

2.3.3 Interstage Java EE 6 DAS Service Log Files

For details on log files, refer to "[4.17 Java EE Application Logs](#)".

2.3.4 Interstage Java EE 6 DAS Service Instance Names and Definition Information

The Interstage Java EE 6 DAS service runs as a standalone instance that does not belong to any IJServer cluster.

It has an instance name, the same as the server instances under the IJServer cluster.

The Interstage Java EE 6 DAS service instance name is shown below.

| |
|---------------|
| instance name |
| server |

For example, to run the Interstage Java EE 6 DAS service using the asadmin command, follow the procedure below.

- Specifying the instance name to deploy the application to the Interstage Java EE 6 DAS service

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin deploy --target server sample.ear
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin deploy --target server sample.ear
```

The Interstage Java EE 6 DAS service definition is the same as the IJServer cluster definition.

2.3.5 Differences with IJServer Cluster

Function differences between the Interstage Java EE 6 DAS service and the IJServer cluster are shown below.

| | Interstage Java EE 6 DAS service | IJServer cluster |
|---|----------------------------------|------------------|
| Running multiple processes | - | Yes |
| Automatic restart of Java VM processes | Yes | Yes |
| Partial running | - | Yes |
| Control when there is insufficient Java Heap/Permanent generation space | Yes | Yes |
| Monitoring the maximum application processing time | Yes | Yes |
| Alert monitoring | Yes | Yes |
| Current Directory Generation Management | Yes | Yes |
| Environment variable settings | Yes (Note 1) | Yes |
| Application operations | Yes (Note 2) | Yes |
| Creating resources | Yes (Note 2) | Yes |
| Start log rotation | Yes | Yes |
| Console log | Yes | Yes |

Note 1) For details on how to set the environment variables in the Interstage Java EE 6 DAS service, refer to "[4.3.3 Environment Variable Settings](#)".

Note 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 6 service, the examples in the manual may be explanations for IJServer clusters.

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 6 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 6 application runtime environment.

Note

The Java EE 6 IJServer cluster is a different runtime environment to the J2EE application runtime environment (IJServer (J2EE) environment) and the Java EE 5 application runtime environment (Java EE IJServer cluster environment). The following terms are used to distinguish between the two where applicable.

- Java EE 6 IJServer cluster: Java EE 6 application runtime environment
- Java EE IJServer cluster: Java EE 5 application runtime environment
- IJServer (J2EE): J2EE application runtime environment

This manual explains "Java EE 6 IJServer cluster".

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

2.4.1 IJServer Cluster File Configuration

This section explains the following:

- [IJServer Cluster File Configuration](#)
- [Current Directory](#)
- [Log Output Directory](#)

IJServer Cluster File Configuration

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

Windows32/64

The [Java EE 6 common directory] default is C:\Interstage\F3FMisje6\var.

```
[Java EE 6 common directory]\
```

Solaris32/64 Linux32/64

The [Java EE 6 common directory] default is /var/opt/FJSVisje6.

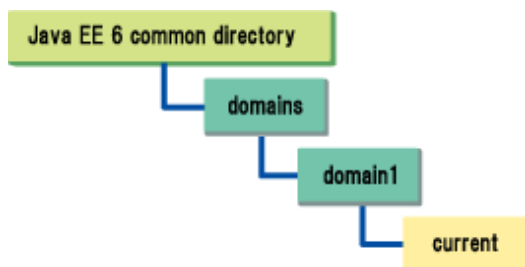
```
[Java EE 6 common directory]/
```

The IJServer cluster configuration information and application resources are deployed for each server instance.

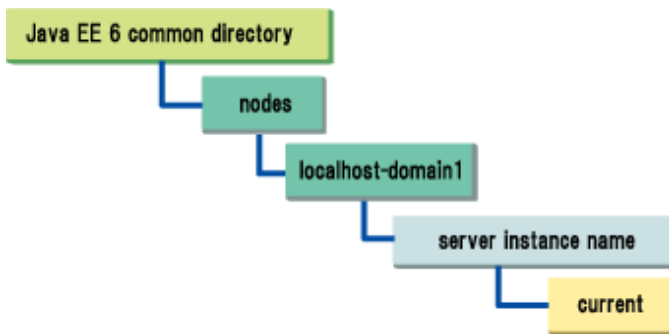
Current Directory

The Interstage Java EE 6 DAS service and server instance Java VM process current directories are created according to the following structures:

Interstage Java EE 6 DAS Service Current Directory



Server Instance Current Directory



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 "4.17 Java EE Application Logs" chapter.

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

2.4.2 IJServer Cluster Multiple Process Configurations

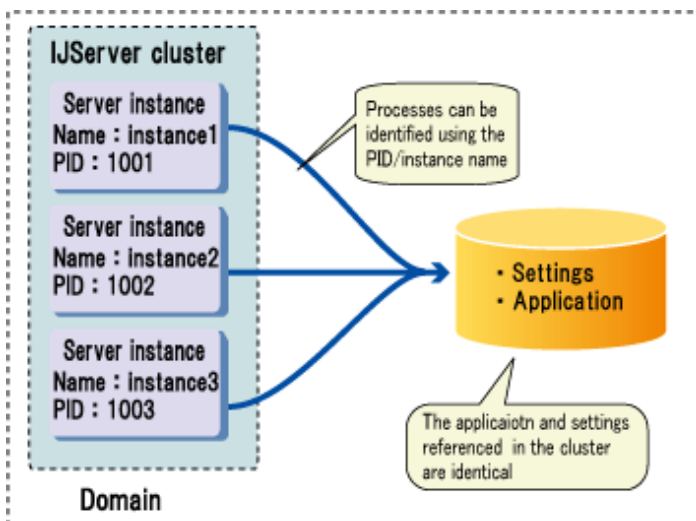
This section explains the following:

- [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 or 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. However, all server instances in one IJServer cluster reference the same user applications and configuration information. 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. For details on items that cannot be duplicated between processes, refer to " 7.7.1 Properties Used when Creating and Updating Definitions ". |
| 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. 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 IJServer cluster name and server instance name can be obtained from the user application by the following system 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 the implementation for 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 6 common directory]\nodes\localhost-domain1\[server instance name]\config\pid
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/nodes/localhost-domain1/[server instance name]/config/pid
```

2.4.3 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 state is called "partially running".

Timing of the Partially Running State

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

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

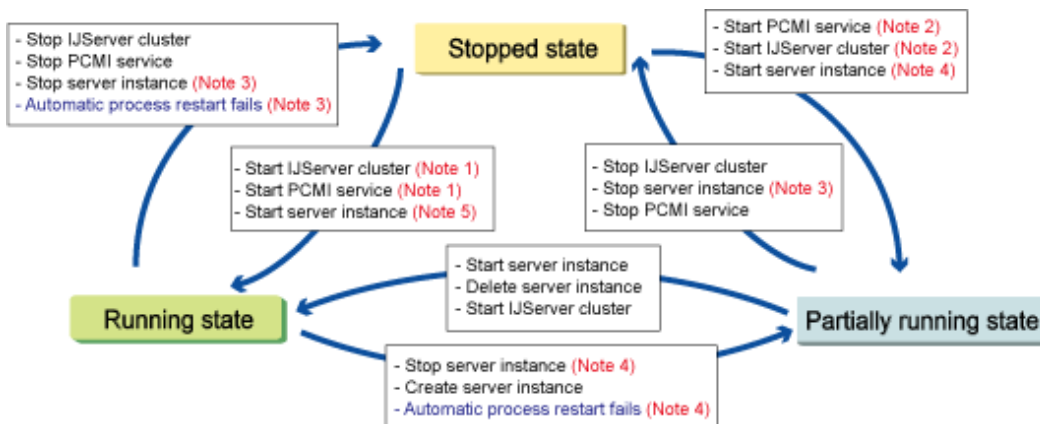
Note) If all server instances under the IJServer cluster are stopped because of the automatic restart failure, then the IJServer cluster will terminate abnormally and have a "not running" state.

Restoration from a Partially Running State

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

IJServer Cluster Status Transition

The figure below shows the status transition for IJServer cluster.



Blue: Processing when an error has occurred during the operation

Note 1) When all server instances registered in the IJServer cluster started successfully

Note 2) When only some of the server instances registered in the IJServer cluster started successfully

Note 3) When all server instances registered in the IJServer cluster stopped after the operation or processing finished

Note 4) When some of the server instances registered in the IJServer cluster started after the operation or processing finished

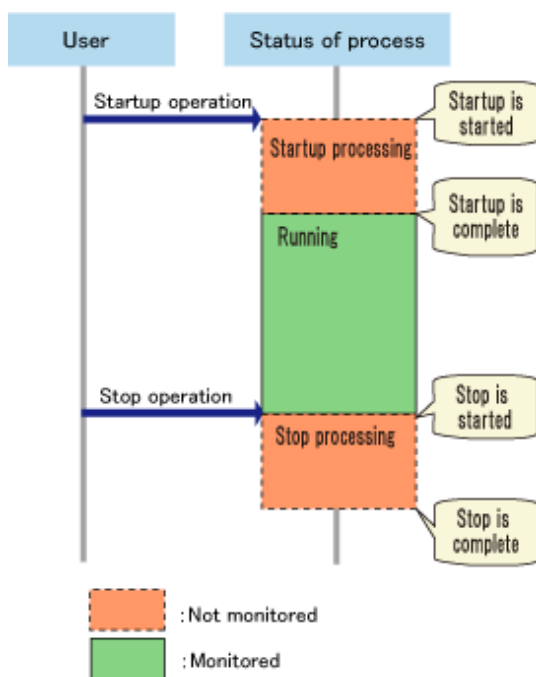
Note 5) When all server instances registered in the IJServer cluster started after the operation or processing finished

2.5 Common Function of the Interstage Java EE 6 DAS Service and IJServer Cluster (Server Instance)

2.5.1 Life-and-death Monitoring of the Java VM Process

The Java VM process of the Interstage Java EE 6 DAS service and server instance is monitored by the PCMI service at two-second intervals.

The monitoring target Java VM processes are those for which startup is complete. Processes for which startup/stop processing is in progress are not monitoring targets.



When the life-and-death monitoring function detects that a Java VM process has failed, error message "PCMI1103" is output to the event log/system log.

The behavior of the process after this message is output is configured in the "Process Automatic Restart" setting of the PCMI profile.

The behavior types that can be specified for "Process Automatic Restart" are as follows:

- [Restart Automatically](#) (default value)
- [Do not restart automatically](#)

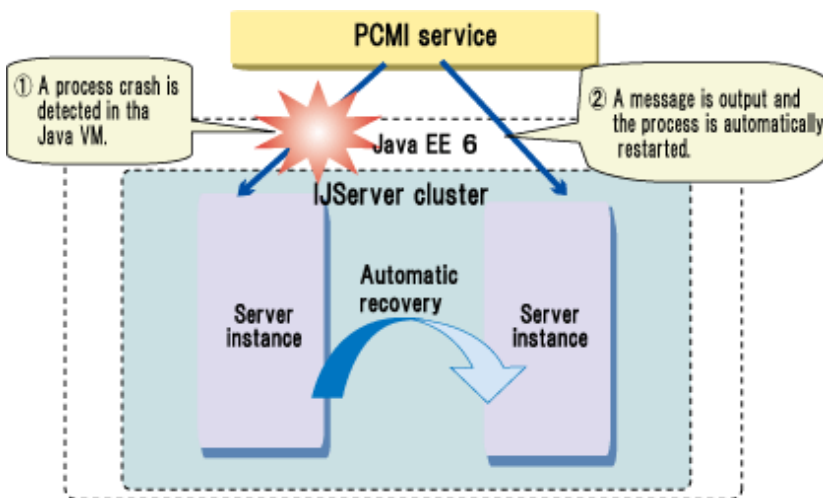


See

- For details on how to configure the PCMI profile, refer to "6.2.1 Changing the PCMI Profile".
- For details on the PCMI service definition items, refer to "7.1 PCMI Service Definition Items".

Restart Automatically

When a Java VM process failure is detected during monitoring, the process will restart automatically after error message "PCMI1103" is output to the event log/system log.



Note

Restarting the Interstage Java EE 6 DAS Service Automatically

When the Interstage Java EE 6 DAS service starts according to the automatic restart, the operating environment (**Note**) or resource definition items are loaded in the same way as the normal startup.

For this reason, if the content of the Interstage Java EE 6 DAS service definition is changed between the startup of the Interstage Java EE 6 DAS service and the Java VM process failure, the definition that was changed will be reflected in the operations that follow the automatic restart.

If the automatic restart has failed, the Interstage Java EE 6 DAS service will not be running.

Restarting a Server Instance Automatically

- The PCMI service restarts the server instance automatically by obtaining the administrator password from the .asadminpass file under PCMI instance directory/adaptor, and then connecting to the Interstage Java EE 6 DAS service. Execute the login --pcmi subcommand to update the .asadminpass file in the following cases:
 - The administrator password was changed using the "change-admin-password subcommand"
 - The admin user or administrator password was changed according to "Updating Admin-realm"
 - "Changing the Operation Management HTTP Listener Port Number"

For details on the .asadminpass file, refer to "9.1.3.1 login Subcommand".

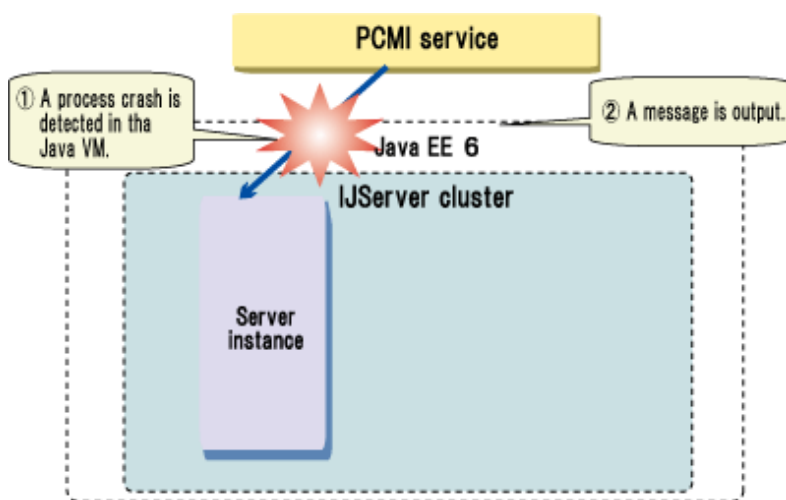
- When the server instance starts according to the automatic restart, the repository synchronization processing and operating environment (Note) or resource definition items are loaded in the same way as the normal startup.

For this reason, if the content of the IJServer cluster or server instance definition is changed between the startup of the server instance and the Java VM process failure, the definition that was changed will be reflected in the operations that follow the automatic restart. If the automatic restart has failed, the IJServer cluster that the server instance belongs to will be in a stopped or partially running state.

Note) This also includes PCMI profile definitions.

Do not restart automatically

When a Java VM process failure is detected during monitoring, error message "PCMI1103" is output to the event log/system log. The process will not restart.



Note

Interstage Java EE 6 DAS Service Failure

If the Interstage Java EE 6 DAS service terminates abnormally, changes to the definition and IJServer cluster operations cannot be performed using the asadmin command.

Changes to the definition and IJServer cluster operations are enabled by starting the Interstage Java EE 6 DAS service manually.

Server Instance Failure

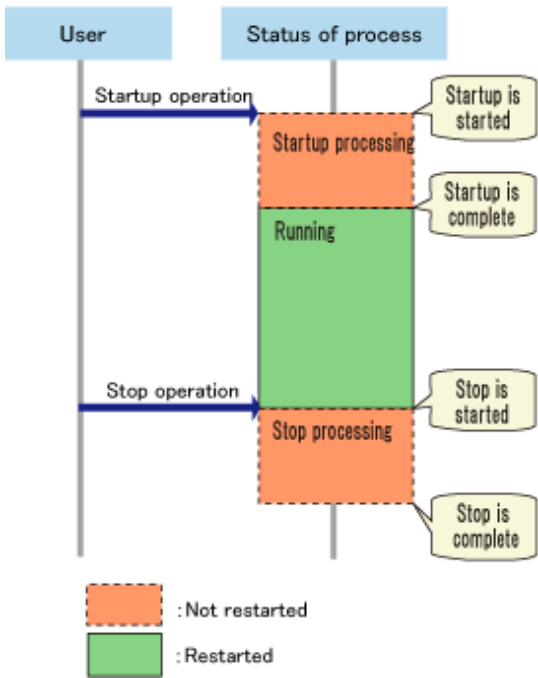
If the server instance fails, the Java EE applications that were running in that server instance cannot be used. Additionally, the IJServer cluster that the server instance belongs to will be in a stopped or partially running state.

Recover the IJServer cluster manually so that it is in an operational state.

2.5.2 Controlling Insufficient Space in the Java Heap/Permanent Generation Area

If there is insufficient space in the Java heap/Permanent generation area in an Interstage Java EE 6 DAS service or server instance Java VM process that is running, the PCMI service outputs warning message "PCMI1105" to the event log/system log.

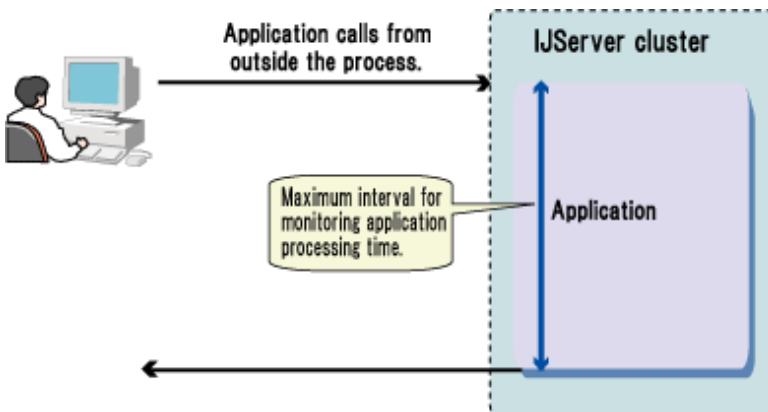
The behavior following when the Java VM process fails because of insufficient space in the Java heap/Permanent generation area is configured in the "automatic restart" setting of the Java VM process life-and-death monitoring feature. For details, refer to "2.5.1 Life-and-death Monitoring of the Java VM Process".



2.5.3 Monitoring the Maximum Application Processing Time

The PCMI service monitors the maximum application processing time for the Interstage Java EE 6 DAS service and server instance applications.

By monitoring the maximum application processing time, response delays and situations where an application has hung can be detected. This functionality is enabled for when calls for the web application, EJB application and message-driven bean are made from outside the process.

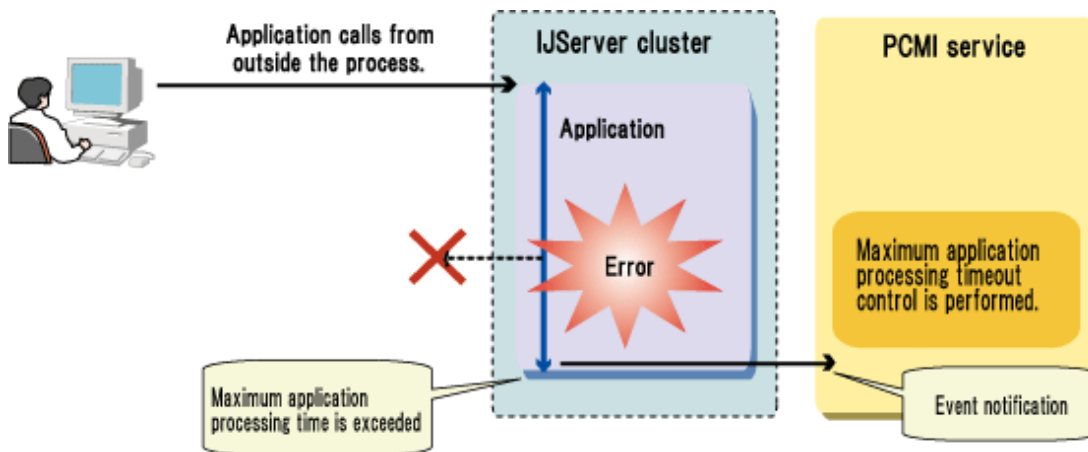


The behavior when the maximum application processing time is exceeded is configured in the "Maximum Application Processing Timeout Control" setting of the PCMI profile.

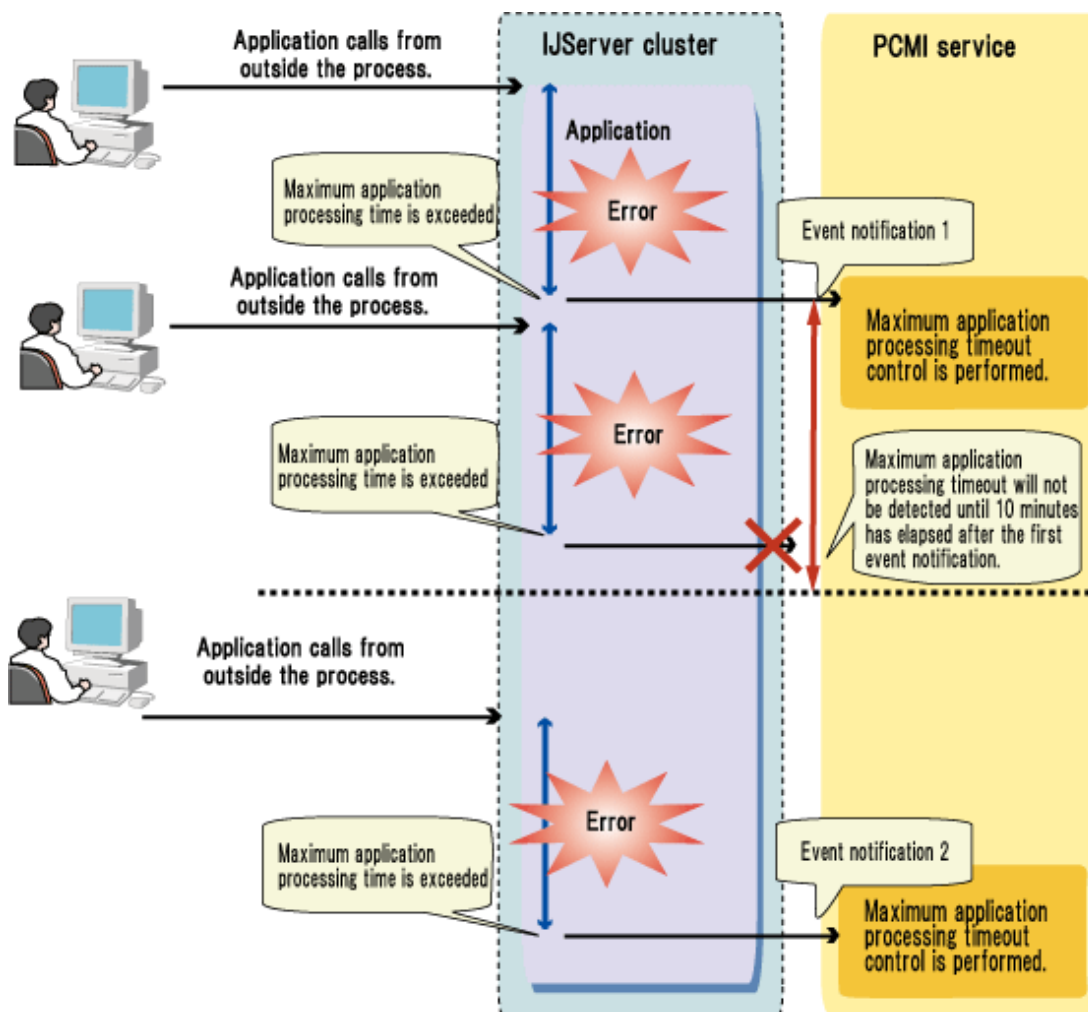
The behavior types that can be specified for "Maximum Application Processing Timeout Control" are as follows:

- [Output WARNING message](#) (default value)
- [Stop the process forcibly](#)

The default value for the maximum application processing time is 480 seconds.



If the maximum application processing time is exceeded, this fact will not be detected for the same instance until 10 minutes has elapsed. To enable the PCMI service to detect that the maximum application processing time was exceeded before 10 minutes have elapsed, restart the IJServer cluster/server instance.



Output WARNING message

If the maximum application processing time was exceeded, the following processing is performed:

1. Warning message "PCMI1106" is output to the event log/system log.
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 IIServer cluster, warning message "PCMI1106" will only be output once.

Stop the process forcibly

If the maximum application processing time was exceeded, the following processing is performed:

1. Error message "PCMI1107" is output to the event log/system log.
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.
4. Ten seconds after Step 3, the process is stopped forcibly.

Note

- It takes a minimum of 20 seconds to stop the process forcibly, therefore the application may return normally during that time.
- Depending on the forced stop timing, the following states may occur (except when all responses were successfully sent to the client):
 - If the application is stopped forcibly in a state where it has not sent a response, communication will be cut without any response being returned to the client. However, if the access from the client is via a web server, the web server connector detects the error and returns status code 500 to the client.
 - If the application sends only some responses and the application is then stopped forcibly before the sending of those responses is complete, the data that was already sent to the client will be irrecoverable at the point at which the application is stopped forcibly. For this reason, the portion of the data that will be sent is the portion that was already sent to the client (status line, header, message body). In this case, there will be a dependency on the result that was returned by the application, therefore a status code other than 200 may be returned.

See

- For details on how to configure "Maximum Application Processing Time" and "Maximum Application Processing Timeout Control", refer to "[6.2.1 Changing the PCMI Profile](#)".
- For details on the PCMI service definition items, refer to "[7.1 PCMI Service Definition Items](#)".

2.5.4 Process Start Time Monitoring/Stop Time Monitoring

The PCMI service monitors the time taken to start and stop the Java VM process of the Interstage Java EE 6 DAS service and server instance.

Start Time Monitoring

The wait time, from the performance of the Interstage Java EE 6 DAS service and server instance start operation until the completion of the Java VM process startup, is monitored.

If a problem occurs during the startup, for example, the startup processing stops responding or is delayed, the process can be stopped forcibly through start time monitoring so that the startup processing can be canceled. At this time, error message "PCMI1102" is output to the event log/system log.

The wait time is configured as "Process Startup Wait Time" (default value: 600 seconds) of the PCMI profile. To avoid the interruption of processing until the startup is complete, specify "0" for "Process Startup Wait Time".

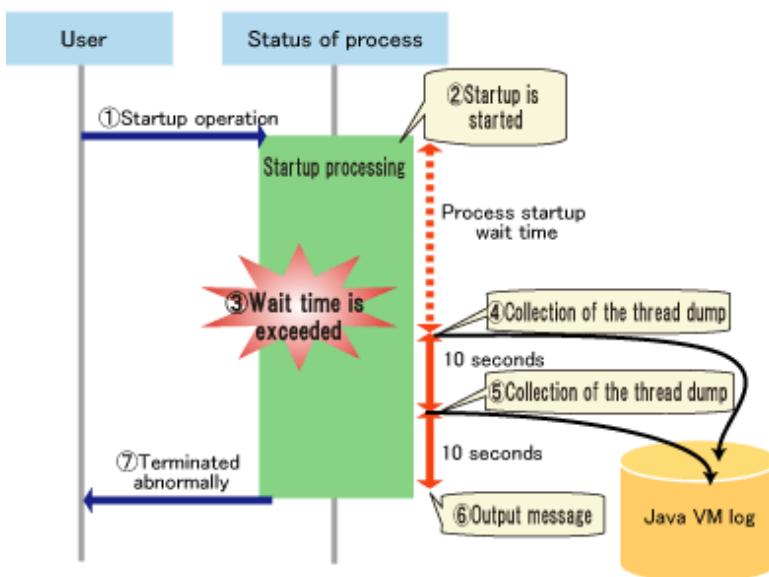


See

- For details on configuring the process startup wait time, refer to "6.2.1 Changing the PCMI Profile".
- For details on the PCMI service definition items, refer to "7.1 PCMI Service Definition Items".

The thread dump is collected automatically and output to the Java VM log before the process stops. A thread dump is collected twice, immediately after the wait time is exceeded and again 10 seconds later. By checking the change in these two thread dumps, it is possible to investigate what is causing the processing to take so long.

The behavior from the collection of the thread dump until the process stops is shown in the following figure.



Note

The asadmin command, which was executed by the user for the start operation, terminates abnormally at the point where the process stops.

Stop Time Monitoring

The wait time, from the performance of the Interstage Java EE 6 DAS service and server instance stop operation until the completion of the Java VM process stop, is monitored.

If a problem occurs during the completion, for example, the completion processing stops responding or is delayed, the process can be stopped completely through stop time monitoring. At this time, error message "PCMI1101" is output to the event log/system log.

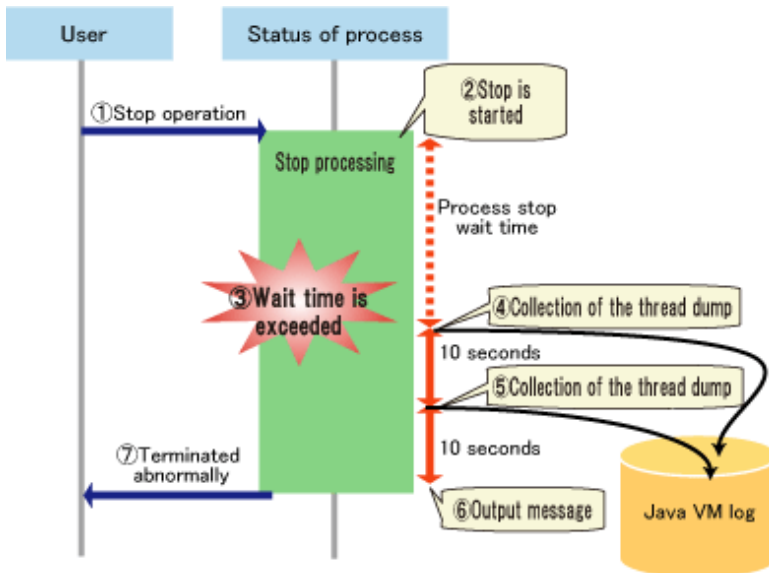
The wait time is configured as "Process Stop Wait Time" (default value: 180 seconds) of the PCMI profile. To avoid the interruption of processing until the stop is complete, specify "0" for "Process Stop Wait Time".

See

- For details on how to configure the process stop wait time, refer to "[6.2.1 Changing the PCMI Profile](#)".
- For details on the PCMI service definition items, refer to "[7.1 PCMI Service Definition Items](#)".

The thread dump is collected automatically and output to the Java VM log before the process stops. A thread dump is collected twice, immediately after the wait time is exceeded and again 10 seconds later. By checking the change in these two thread dumps, it is possible to investigate what is causing the processing to take so long.

The behavior from the collection of the thread dump until the process stops is shown in the following figure.



Note

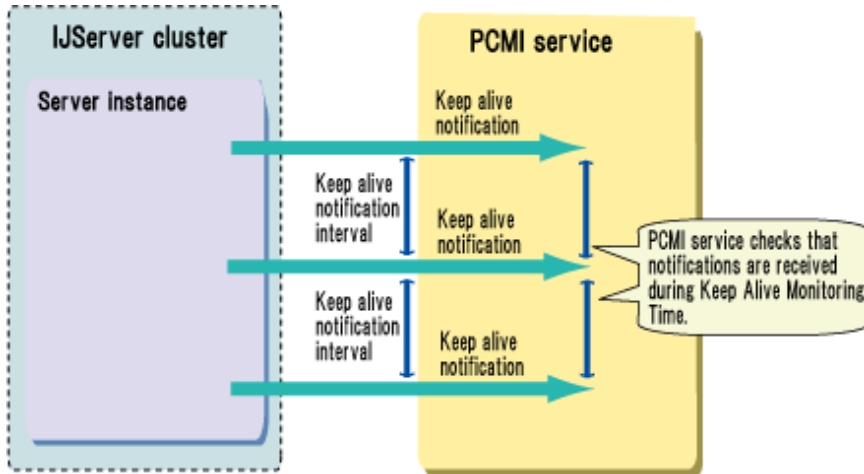
The asadmin command, which was executed by the user for the stop operation, ends normally at the point where the process stops.

2.5.5 Keep Alive Monitoring

The PCMI service performs keep alive monitoring of the Interstage Java EE 6 DAS service and server instances.

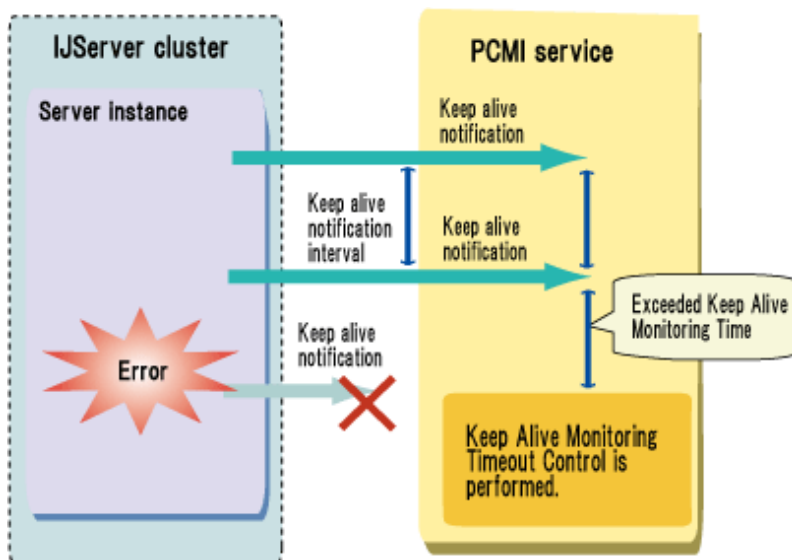
In keep alive monitoring, notifications are sent from the server instance to the PCMI service at fixed (5-second) intervals. If no notification is received within the time defined for the keep alive monitoring time, it will be assumed that a problem has occurred while operating the server instance.

The default value for the keep alive monitoring time is 30 seconds.



The behavior when the keep alive monitoring time is exceeded is configured in the "Keep Alive Monitoring Timeout Control" definition item. The behavior types that can be specified for Keep Alive Monitoring Timeout Control are as follows:

- Output WARNING Message (default value)
- Stop the Process Forcibly



Output WARNING Message

If the keep alive monitoring time was exceeded, the following processing is performed:

1. Warning message "PCMI1108" is output to the event log/system log.

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 for the server instance in which the keep alive monitoring time was exceeded is continued.

Stop the Process Forcibly

1. Error message "PCMI1109" is output to the event log/system log.
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.
4. Ten seconds after Step 3, the process is stopped forcibly.

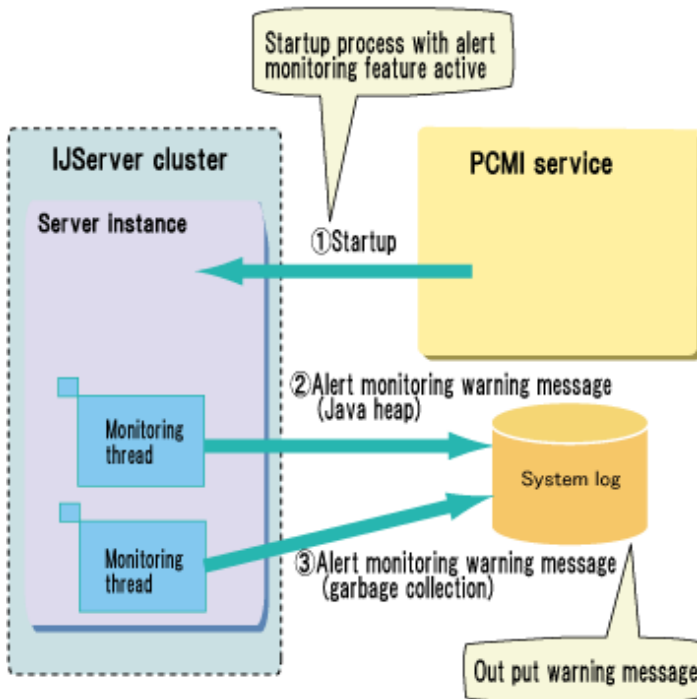
See

- For details on how to configure "Keep Alive Monitoring Time" and "Keep Alive Monitoring Timeout Control", refer to "[6.2.1 Changing the PCMI Profile](#)".
- For details on the PCMI service definition items, refer to "[7.1 PCMI Service Definition Items](#)".

2.5.6 Alert Monitoring

A feature is provided that monitors the Java heap area for the Interstage Java EE 6 DAS service/server instance to determine if it is sufficient, and monitors signs of response degradation because of the frequent Garbage Collection that occurs as a result.

The alert monitoring feature will output a warning message when a predictor is detected. The warning message is output to the event log/system log and server log.



See

- For details on the detail content and output conditions for the warning message, refer to "2.5.6.1 Alert Monitoring Warning Message (Java Heap)" and "2.5.6.2 Alert Monitoring Warning Message (Garbage Collection)".

Note

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.

2.5.6.1 Alert Monitoring Warning Message (Java Heap)

Monitors the Java VM pool for allocating VM and the Permanent generation area, and notifies warning message "OM3204" if there is insufficient Java heap space.

There are three types of warning message detail which notify Java heap and Permanent generation area problems. These are shown below.

There are possibilities of OutOfMemoryError because of the lack of the memory: TIME={0} SIZE={1}

Variable Information

TIME: Time of the occurrence

SIZE: Rough estimate of the volume added to the Java heap area (Unit: Bytes)

Explanation

There is insufficient Java heap space; therefore, there is a risk that OutOfMemoryError will occur.

Conditions of occurrence

The Java heap usage immediately after Full GC is greater than 95%.

Or, more than 90% of Java heap memory is used although Full GC has just been performed, and the following situation has occurred three times consecutively: more Java heap memory is consumed than the memory size that used to be consumed just after the previous Full GC.

There are possibilities of OutOfMemoryError because of the lack of the Perm region: TIME={0} SIZE={1}

Variable Information

TIME: Time of the occurrence

SIZE: Rough estimate of the volume added to the Permanent generation area (Unit: Bytes)

Explanation

There is insufficient space in the Permanent generation area; therefore, there is a risk that OutOfMemoryError will occur.

Conditions of occurrence

The Permanent generation area usage is greater than 90%.

OutOfMemoryError warning is occurred because the Perm region is exhausted: TIME={0} SIZE={1}

Variable Information

TIME: Time of the occurrence

SIZE: Rough estimate of the volume added to the Permanent generation area (Unit: Bytes)



.....
Note that the SIZE value is the size (volume increase) assumed for increases of the same rate.
.....

Explanation

The Permanent generation area usage has increased rapidly, therefore there is a risk that OutOfMemoryError will occur.

Conditions of occurrence

The increase in the amount of Permanent generation area usage since the previous measurement is greater than 10% of the total Permanent generation area, and the next time the amount of usage is measured, the memory size also increases by the same rate, with the result that the usage rate of the assumed Permanent generation area is greater than 90%.

2.5.6.2 Alert Monitoring Warning Message (Garbage Collection)

Detects the possibility of business response degradation occurring because of the influence of Java VM Garbage Collection processing, and notifies warning message "OM3204".

There are five types of warning message detail which notify the impact of Java VM Garbage Collection processing. These are shown below.

Warning Messages Related to the Garbage Collection Processing Time

It takes long time to do the garbage collections many times: TIME={0} AVERAGE={1}

Variable Information

TIME: Time of the occurrence

AVERAGE: Average time for the past three Full GCs (Unit: Milliseconds)

Explanation

A state continues where Full GC takes a long time.

Conditions of occurrence

The average value for the past three Full GCs is longer than 5 seconds.

Warning Messages Related to the Garbage Collection Interval

Inefficient garbage collections are run with the short intervals: TIME={0} WEIGHT={1}

Variable Information

TIME: Time of the occurrence

WEIGHT: Usage of the old generation immediately before Full GC (Unit: %)

Explanation

Inefficient Full GC occurs at short intervals.

Conditions of occurrence

The Full GC interval time for the past three times is less than 20 seconds, and the usage 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}

Variable Information

TIME: Time of the occurrence

SIZE: Rough estimate of the volume added to the Java heap area (Unit: Bytes)



To avoid this warning, it will be necessary to increase the size of the Java heap area for which the warning occurred. The SIZE value is a rough estimate of the volume added to the Java heap area.

Explanation

There is insufficient Java heap space; therefore, Full GC occurs frequently.

Conditions of occurrence

The Full GC interval time for the past three times is less than 20 seconds, and the Java heap usage immediately after Full GC is greater than 65%.

System.gc() are run with the short intervals: TIME={0} INTERVAL={1}

Variable Information

TIME: Time of the occurrence

INTERVAL: java.lang.System.gc() method or java.lang.Runtime.gc() method interval time (milliseconds)

Explanation

The java.lang.System.gc() method or java.lang.Runtime.gc() method is executed at short intervals.

Conditions of occurrence

The Full GC interval time for the past three times is less than 20 seconds, and Full GC occurs at a high frequency as a result of executing the `java.lang.System.gc()` method or `java.lang.Runtime.gc()` method.

The garbage collections are run with the short intervals: TIME={0} INTERVAL={1}

Variable Information

TIME: Time of the occurrence

INTERVAL: Full GC interval time (Unit: Milliseconds)

Explanation

Full GC occurs at short intervals.

Conditions of occurrence

The Full GC interval time for the past three times is less than 20 seconds.



Even when the conditions in [Requirements to reproduce this issue] are met, a message may not be output if the Garbage Collection processing time is short.

2.6 Web Container

The web container in this product provides the following functionality.

- Servlet 3.0
Servlets that conform to Java(TM) Servlet API 3.0 can be executed.
- JSP 2.2
JSP that conforms to Java Server Pages 2.2 Specification can be displayed.

2.6.1 Servlet

This section explains points to consider when using the web container to execute a servlet.

For details on how to create applications that use servlets, and for a more detailed explanation, refer to the Java Servlet Specification.

2.6.1.1 HTTP Session

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

If a session timeout is not specified in the application, the session will time out after 30 minutes.

In Servlet 3.0, the number of items related to HTTP sessions that can be set in `web.xml` and Servlet API has increased. For enhanced security, it is recommended that the `HttpOnly` attribute be granted to the session cookie, and that the tracking mode be specified. For details, refer to the following sections in "[5.1 Security Measures for Java EE](#)":

- Session Cookie Leaks Caused by Cross-Site Scripting
- Session Information Leaks



Note

- In Servlet 3.0, the session cookie name can be changed from "JSESSIONID". For web server linkage, the session cookie name should not be changed from "JSESSIONID". Additionally, note the session cookie name used for distribution control in linkage with the SSL accelerator and load balancer.
- For details on other notes related to sessions, refer to the following section in "[1.3.2 Notes About Web Applications](#)":
 - Notes About Sessions

2.6.1.2 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 (when web server linkage is used)
- 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
Refer to "Interstage HTTP Server Operator's Guide" - "Directives" - ErrorDocument.
- Web application error page
This can be set in web.xml. Refer to the Servlet/JSP specifications.

This section explains the trigger for each error page.

Web server error page

An error page is used in the following cases:

- When there is an error in the requested URL
- When the web server connector has detected a send/receive timeout or a web container failure in the communication with the web container
- 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 default error page

An error page is used in the following cases:

- When an exception or error occurs in the web application, or the `javax.servlet.http.HttpServletResponse#sendError(int)` method is executed, and the corresponding error page has not been set
- When a request is invalid, and the web container sends a response to the client before the processing in the web application is started
- When there is a bug in the web application, and the web application fails to initialize or execute

For details, refer to the Servlet specifications.

Web application error page

An error page is used in the following cases:

- When an exception or error occurs in the web application, or the `javax.servlet.http.HttpServletResponse#sendError(int)` method is executed, and the corresponding error page has been set

For details, refer to the Servlet specifications.

Note

For details on notes related to error pages, refer to the following sections in "[1.3.2 Notes About Web Applications](#)":

- Errors and Exceptions
- Error Pages

2.6.1.3 Welcome File

The "welcome" file is a file that is displayed when the requested URI is not a file name. If there is no welcome file, the web container returns the status code "404" (Not Found).

The three welcome file types shown below are set in the Java EE 6 web container by default. These are applied in the order shown.

- index.html
- index.htm
- index.jsp

The welcome file can be changed in web.xml. For details, refer to the Servlet specifications.

Note

When customizing the welcome file in web.xml, and the above three files are used as the welcome file, specify the above files in web.xml explicitly.

2.6.1.4 File Upload Function

In Servlet 3.0, a file upload function has been added. Notes on using the file upload function are explained in this section.

Note

- The upper limit for the number of bytes for the size of the file to be sent is not valid in the max-post-size-bytes property. Specify `maxFileSize` in the `@MultipartConfig` annotation of the servlet, or `<servlet> - <multipart-config> - <max-file-size>` in web.xml.
- If a file larger than the size specified in `fileSizeThreshold` of the `@MultipartConfig` annotation or `<servlet> - <multipart-config> - <file-size-threshold>` of web.xml is uploaded, a temporary file is created in the location specified in "location".
- If the file upload is interrupted, for example by closing the web browser while the file is being uploaded, the temporary file may still remain. This file is automatically deleted afterwards, however if the process stops before this, it will still remain. In this case, delete the following temporary file manually:
 - File with the prefix "upload" and the extension ".tmp"

2.6.2 JSP

This section explains the web container functions that facilitate the development of JSP.

For details on how to create applications that use JSP, and for a more detailed explanation, refer to the JSP specification.

2.6.2.1 JSP Auto Reload

While developing an application that uses JSP, to check whether JSP can be displayed correctly, JSP of already deployed applications can be loaded so that the application does not have to be created again and then redeployed. This is called the "JSP auto reload function".

Before using the JSP auto reload function, specify one of the following properties in `<jsp-config>` of the Interstage web application deployment descriptor (glassfish-web.xml):

- development: When it is determined whether JSP has been loaded per request

- checkInterval: When it is determined whether JSP has been loaded per fixed interval

Example

glassfish-web.xml when it is determined whether JSP has been loaded per request

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE glassfish-web-app PUBLIC
  "-//GlassFish.org//DTD GlassFish Application Server 3.1 Servlet 3.0//EN"
  "http://glassfish.org/dtds/glassfish-web-app_3_0-1.dtd">
<glassfish-web-app>
  <jsp-config>
    <property name="development" value="true" />
  </jsp-config>
</glassfish-web-app>
```

To perform JSP auto reload, edit or replace the JSP files of applications that have already been deployed.

The application that has already been deployed is stored in the directories shown below in a format where the deployment module has been unpacked.

Interstage Java EE 6 DAS Service

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\applications\<<application name>
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/applications/<application name>
```

Server instances under IJServer clusters

Windows32/64

```
[Java EE 6 common directory]\nodes\localhost-domain1\<<server instance name>\applications
\<<application name>
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/nodes/localhost-domain1/<server instance name>/applications/
<application name>
```

Note

- After the JSP file under the server instance is updated, when the IJServer cluster is restarted, it is replaced with the Interstage Java EE 6 DAS service file through synchronous processing. For this reason, to update the JSP file under the server instance, make the same changes for the JSP file under the Interstage Java EE 6 DAS service as well.
- For an IJServer cluster that has multiple server instances, the JSP file must be edited or replaced for all server instances.

The JSP auto reload target files are shown below.

- JSP
- JSP "static include" (Note 1) and "dynamic include" (Note 2) files, such as JSP and txt
- Files specified in <include-pragma> or <include-coda> under <jsp-config>-<jsp-property-group> of web.xml
- tld files (WEB-INF, or the content under that subdirectory)
- Tag files defined in the tld file (WEB-INF/tags, or the content under that subdirectory) (Note 3)
- Tag files referenced from JSP (WEB-INF/tags, or the content under that subdirectory)

The following files are not targets of JSP auto reload:

- tld files (META-INF in jar under WEB-INF/lib, or the content under that subdirectory)
- Tag files referenced from tld files (META-INF/tags in jar under WEB-INF/lib, or the content under that subdirectory)
- Tag classes

Note 1)

"static include" means that the file is included using the include directive, as follows:

 **Example**

```
<%@ include file="include.txt"%>
```

Note 2)

"dynamic include" means that the file is included using the <jsp:include> tag, as follows:

Note that, in dynamic include, even if the JSP auto reload function is not enabled, static files such as txt will be loaded per request, therefore the changes will be reflected.

 **Example**

```
<jsp:include page="include.txt" flush="true" />
```

Note 3)

In this case, the content has been defined in the <path> tags under the <tag-file> tag of the tld file.

 **Example**

```
<tag-file>  
  <name>sampleTag</name>  
  <path>/WEB-INF/tags/sample/sample.tag</path>  
</tag-file>
```

 **Note**

For notes related to how to load JSP, refer to "Switching JSP" of "[1.3.2 Notes About Web Applications](#)".

2.6.3 Character Encoding

So that multibyte characters such as Japanese can be handled correctly in the application, the settings that are related to character encoding can be configured using the functions provided by the web container.

For details on how to configure the settings and notes related to character encoding, refer to the following sections:

- "[7.7.3 Network Configuration Definition Items](#)"
 - Encoding that is used in request URI analysis(uri-encoding)
- "[3.2.1 Interstage deployment descriptor](#)"
 - parameter-encoding
 - fileEncoding

- "1.3.2 Notes About Web Applications"

- Character Encoding

Configure the settings provided in the web container as shown below.

uri-encoding settings

Example: When encoding in UTF-8 and sending the GET request, set UTF-8 as the encoding (uri-encoding) used in request URI parsing.

```
GET /sample/%E3%81%A6%E3%81%99%E3%81%A8 HTTP/1.1
Host: samplehost
```

Note that the uri-encoding default value is UTF-8. For this reason, the uri-encoding setting is not required when the web browser encodes the request URI in UTF-8 before sending the request.

When the web browser encodes the request URI in a type other than UTF-8 before sending the request, set uri-encoding.

parameter-encoding settings

Example: If a GET request query is encoded in UTF-8 before being sent, set UTF-8 in parameter-encoding.

```
GET /sample/test?query=%e3%82%af%e3%82%a8%e3%83%aa HTTP/1.1
Host: samplehost
```

Example: If a POST request BODY is encoded in UTF-8 before being sent, set UTF-8 in parameter-encoding.

```
POST /sample/test HTTP/1.1
Host: samplehost
Content-Type: application/x-www-form-urlencoded
Content-Length: 34

body=%e3%82%af%e3%82%a8%e3%83%aa
```

Note that, if `javax.servlet.ServletRequest#setCharacterEncoding(java.lang.String)` is executed before the query or BODY is read, the value specified in `setCharacterEncoding` will be effective.

Additionally, if the `charset` attribute is specified in the Content-Type header, the `charset` attribute value will be effective.

```
POST /sample/test HTTP/1.1
Host: samplehost
Content-Type: application/x-www-form-urlencoded; charset=UTF-8
Content-Length: 34

body=%e3%82%af%e3%82%a8%e3%83%aa
```

In this way, the parameter-encoding setting is not required when character encoding is set in the application.

fileEncoding settings

fileEncoding is used to display a static resource when a servlet or JSP has dispatched to the static resource (such as an html or txt file).

Example: To include a txt file in the JSP file, specify the txt file encoding in fileEncoding.

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@page import="java.net.URLClassLoader, java.net.URL" %>

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN"
  "http://www.w3.org/TR/html4/loose.dtd">

<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <title>JSP Page</title>
  </head>
  <body>
    <jsp:include page="sample.txt" flush="true" />
  </body>
</html>
```

```
</body>
</html>
```

2.6.4 Default MIME Type

In the web container, the MIME type values shown below are defined by default.

When using the web application's own MIME type, this can be set in the web application deployment descriptor (web.xml).

| extension | MIME type | extension | MIME type | extension | MIME type |
|-----------|---|-----------|---------------------------|-----------|-------------------------------|
| abs | audio/x-mpeg | js | text/javascript | shar | application/x-shar |
| ai | application/postscript | kar | audio/x-midi | sit | application/x-stuffit |
| aif | audio/x-aiff | latex | application/x-latex | smf | audio/x-midi |
| aifc | audio/x-aiff | m3u | audio/x-mpegurl | snd | audio/basic |
| aiff | audio/x-aiff | mac | image/x-macpaint | src | application/x-wais-source |
| aim | application/x-aim | man | application/x-troff-man | sv4cpio | application/x-sv4cpio |
| art | image/x-jg | mathml | application/mathml+xml | sv4crc | application/x-sv4crc |
| asf | video/x-ms-asf | me | application/x-troff-me | svg | image/svg+xml |
| asx | video/x-ms-asf | mid | audio/x-midi | svgz | image/svg+xml |
| au | audio/basic | midi | audio/x-midi | swf | application/x-shockwave-flash |
| avi | video/x-msvideo | mif | application/x-mif | t | application/x-troff |
| avx | video/x-rad-screenplay | mov | video/quicktime | tar | application/x-tar |
| bcpio | application/x-bcpio | movie | video/x-sgi-movie | tcl | application/x-tcl |
| bin | application/octet-stream | mp1 | audio/x-mpeg | tex | application/x-tex |
| bmp | image/bmp | mp2 | audio/x-mpeg | texi | application/x-texinfo |
| body | text/html | mp3 | audio/x-mpeg | texinfo | application/x-texinfo |
| cdf | application/x-cdf | mpa | audio/x-mpeg | tif | image/tiff |
| cer | application/x-x509-ca-cert | mpe | video/mpeg | tiff | image/tiff |
| class | application/java | mpeg | video/mpeg | tr | application/x-troff |
| cpio | application/x-cpio | mpv2 | video/mpeg2 | tsv | text/tab-separated-values |
| csht | application/x-csh | ms | application/x-wais-source | txt | text/plain |
| css | text/css | nc | application/x-netcdf | ulw | audio/basic |
| dib | image/bmp | oda | application/oda | ustar | application/x-ustar |
| doc | application/msword | ogg | application/ogg | xbm | image/x-xbitmap |
| docm | application/vnd.ms-word.document.macroEnabled.12 | pbm | image/x-portable-bitmap | xml | application/xml |
| docx | application/vnd.openxmlformats-officedocument.wordprocessingml.document | pct | image/pict | xpm | image/x-xpixmap |
| dtd | application/xml-dtd | pdf | application/pdf | xsl | application/xml |

| extension | MIME type | extension | MIME type | extension | MIME type |
|-----------|----------------------------------|-----------|---|------------|---|
| dv | video/x-dv | pgm | image/x-portable-graymap | xslt | application/xslt+xml |
| dvi | application/x-dvi | pic | image/pict | xwd | image/x-xwindowdump |
| eps | application/postscript | pict | image/pict | vsd | application/x-visio |
| etx | text/x-setext | pls | audio/x-scpls | vxml | application/voicexml+xml |
| exe | application/octet-stream | png | image/png | wav | audio/x-wav |
| gif | image/gif | pnm | image/x-portable-anymap | wbmp | image/vnd.wap.wbmp |
| gk | application/octet-stream | pnt | image/x-macpaint | wml | text/vnd.wap.wml |
| gtar | application/x-gtar | ppm | image/x-portable-pixmap | wmlc | application/vnd.wap.wmlc |
| gz | application/x-gzip | ppt | application/powerpoint | wmls | text/vnd.wap.wmls |
| hdf | application/x-hdf | pptm | application/vnd.ms-powerpoint.presentation.macroEnabled.12 | wmlscriptc | application/vnd.wap.wmlscriptc |
| hqx | application/mac-binhex40 | pptx | application/vnd.openxmlformats-officedocument.presentationml.presentation | wrl | x-world/x-vrml |
| htc | text/x-component | ps | application/postscript | xht | application/xhtml+xml |
| htm | text/html | psd | image/x-photoshop | xhtml | application/xhtml+xml |
| html | text/html | qt | video/quicktime | xls | application/vnd.ms-excel |
| hqx | application/mac-binhex40 | qti | image/x-quicktime | xlsm | application/vnd.ms-excel.sheet.macroEnabled.12 |
| ico | image/x-icon | qtif | image/x-quicktime | xlsx | application/vnd.openxmlformats-officedocument.spreadsheetml.sheet |
| ief | image/ief | ras | image/x-cmu-raster | xul | application/vnd.mozilla.xul+xml |
| jad | text/vnd.sun.j2me.app-descriptor | rdf | application/rdf+xml | Z | application/x-compress |
| jar | application/java-archive | rgb | image/x-rgb | z | application/x-compress |
| java | text/plain | rm | application/vnd.rn-realmedia | zip | application/zip |
| jnlp | application/x-java-jnlp-file | roff | application/x-troff | odp | application/x-vnd.oasis.opendocument.presentation |
| jpe | image/jpeg | rtf | application/rtf | odt | application/x-vnd.oasis.opendocument.text |
| jpeg | image/jpeg | rtx | text/richtext | ods | application/x-vnd.oasis.opendocument.spreadsheet |
| jpg | image/jpeg | sh | application/x-sh | odg | application/x-vnd.oasis.opendocument.graphics |

2.7 HTTP Service

The HTTP Service provides the feature for processing requests made using HTTP communication. It configures the settings related to the addresses and ports used in communication between the web container and the client.

In the HTTP Service, the settings for the port that the web container will communicate with the client are configured.

The settings for the HTTP Service are configured using the asadmin command.

For details on how to configure the settings, refer to "[Chapter 9 Java EE 6 Operation Commands](#)".

Additionally, for details on the definitions that can be set, refer to "[7.7.2 HTTP Service Definition Items](#)" and "[7.7.3 Network Configuration Definition Items](#)".

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

- HTTP Listener
- HTTPS Listener
- HTTP Access Log
- HTTP Trace Log

2.7.1 HTTP Listener

The HTTP (HTTPS) listener performs the role of receiving requests from the client. In the Interstage Java EE 6 DAS service or IJServer cluster, the following listeners have been prepared:

- http-listener-1: HTTP communication listener
- http-listener-2: HTTPS communication listener

For details on each definition, refer to "[7.7.3 Network Configuration Definition Items](#)".

2.7.1.1 Changing the HTTP Listener Port Number

Use the procedure shown below to change the HTTP listener port number.

Interstage Java EE 6 DAS service

Change "Port number" of "[7.7.3 Network Configuration Definition Items](#)".



Example

Changing the HTTP listener port number to 29282

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set server.network-config.network-listeners.network-listener.http-listener-1.port=29282
```

Solaris32/64 Linux32/64

```
/opt/FJSVIsje6/glassfish/bin/asadmin set server.network-config.network-listeners.network-listener.http-listener-1.port=29282
```



Note

For details on how to change the operation management HTTP listener (admin-listener) port number, refer to "[Changing the Operation Management HTTP Listener Port Number](#)".

Server instances under IJServer clusters

Change the server instance system properties.

- HTTP listener: HTTP_LISTENER_PORT
- HTTPS listener: HTTP_SSL_LISTENER_PORT

Example

Changing the HTTPS listener port numbers of server instances "IJServer001_1" and "IJServer001_2" under IJServer cluster "IJServer001" to 29393 and 29394

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-system-properties --target IJServer001_1
HTTP_SSL_LISTENER_PORT=29393
```

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-system-properties --target IJServer001_2
HTTP_SSL_LISTENER_PORT=29394
```

Solaris32/64 Linux32/64

```
/opt/FJSMisje6/glassfish/bin/asadmin create-system-properties --target IJServer001_1
HTTP_SSL_LISTENER_PORT=29393
```

```
/opt/FJSMisje6/glassfish/bin/asadmin create-system-properties --target IJServer001_2
HTTP_SSL_LISTENER_PORT=29394
```

2.7.1.2 HTTP Listener Port Blocking

In the web container, the HTTP listener and the HTTPS listener are enabled by default. If the HTTP listener or HTTPS listener is not going to be used, block the port using the command shown below.

Example

Blocking an Interstage Java EE 6 DAS service HTTPS listener port

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set server.network-config.network-listeners.network-
listener.http-listener-2.enabled=false
```

Solaris32/64 Linux32/64

```
/opt/FJSMisje6/glassfish/bin/asadmin set server.network-config.network-listeners.network-listener.http-
listener-2.enabled=false
```

Note

The operation management HTTP listener (admin-listener) port should not be blocked. If this happens, operations such as the execution of the asadmin command will become impossible.

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 "4.17.3 HTTP Access Log".

2.7.3 HTTP Trace Log

If the HTTP trace log is enabled, information on the processing status in the web container for client requests 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 ["4.17.4 HTTP Trace Log"](#).

2.7.4 Network Configuration

This section provides an overview of the settings related to the network that are required so that applications can be executed properly using the web container.

2.7.4.1 Number of Simultaneous Processes/Connections

By tuning the number of simultaneous processes or connections, the number of requests processed by the web container can be controlled, and processing delays or process failures in line with increases in the memory that is used can be prevented.

For details on the settings and how to tune them, refer to the following:

- ["7.7.3 Network Configuration Definition Items"](#)
 - Maximum number of connections(max-connections-count)
 - Acceptor threads(acceptor-thread)
- ["7.7.15 Thread Pool Definition Items"](#)
 - Queue size(max-queue-size)
 - Minimum pool size(min-thread-pool-size)
 - Maximum pool size(max-thread-pool-size)
 - Idle timeout(idle-thread-timeout-seconds)
- ["6.4 Web Container Tuning"](#)

2.7.4.2 Access Control/Security Measures

Access control or response header control can be applied to prevent the processing of requests sent from an unauthorized client, or information leaks.

For details on the settings and how to take action, refer to the following:

- ["7.7.2 HTTP Service Definition Items"](#)
 - IP address that receives requests(allowRemoteAddress)
- ["7.7.3 Network Configuration Definition Items"](#)
 - Network address(address)
 - Operation mode for access to the web container(request-check)
 - X-Powered-By header field(xpowered-by)
- ["5.1 Security Measures for Java EE"](#)

2.7.4.3 Size Constraints

When processing large numbers of requests, or sending large items of data from the client, an appropriate size constraint can be applied so that the web container can process them.

For details on the settings, refer to the following sections:

- ["7.7.3 Network Configuration Definition Items"](#)
 - Maximum POST request size(max-post-size-bytes)
 - Maximum value for the number of HTTP request parameters(max-request-parameters)

- Receive buffer size(buffer-size-bytes)

Note that the servlet file upload function size constraint is performed using the web.xml or servlet annotation.

2.7.4.4 Timeout

By setting various timeouts, long-term occupancy of threads for requests can be prevented.

For details on the settings and how to tune them, refer to the following:

- ["7.7.3 Network Configuration Definition Items"](#)
 - Connection upload timeout(connection-upload-timeout-millis)
 - Send timeout(com.sun.grizzly.writeTimeout)
- ["6.14.1 HTTP Communication"](#)

In addition to the timeout processing the application on the web container, there are other timeouts that must be considered at the same time.

- Keep Alive Timeout
- Maximum Application Processing Time
- Web server connector send/receive timeout

2.7.4.5 Keep Alive

Settings related to keep alive can be configured according to the settings for the existence of a web server, load balancer etc. Note that keep alive is disabled by default.

For details on the settings and how to tune them, refer to the following:

- ["7.7.3 Network Configuration Definition Items"](#)
 - Keep alive timeout(timeout-seconds)
 - 1Number of requests that can be processed in one connection(max-connections)
- ["6.4 Web Container Tuning"](#)

2.8 Web Server Connector

The web server connector has the role of transferring requests that were received by the web server to the web container. For this reason, the web server connector is required for operations performed via a web server.

The combinations in which the web server, web server connector, and Java EE functions can be used together are shown below.

| Web server Web server connector | Java EE 6 functions | Java EE 5 functions |
|---|---------------------|---------------------|
| Interstage HTTP Server 2.2 Web Server Connector (for Interstage HTTP Server 2.2) | Yes | No |
| Interstage HTTP Server Web Server Connector | No | Yes |
| Microsoft(R) Internet Information Services 6.0/7.0/7.5/8.0 Web Server Connector | No | Yes |

Yes: Supported No: Not supported

Web Server Connector (for Interstage HTTP Server 2.2) is explained in this document. Unless stated otherwise, "web server connector" in this document means "Web Server Connector (for Interstage HTTP Server 2.2).

The web server connector contains the following functions:

- Request Distribution Control by Web Server Connector
- Fault Monitoring

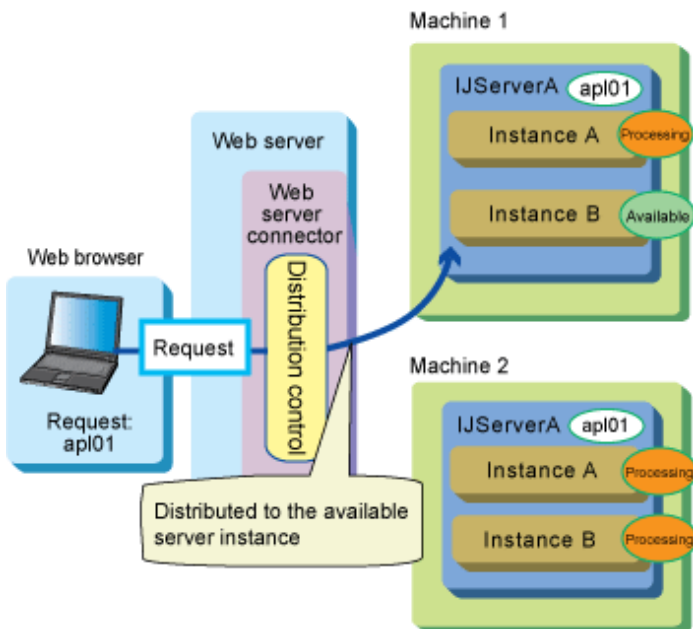


See

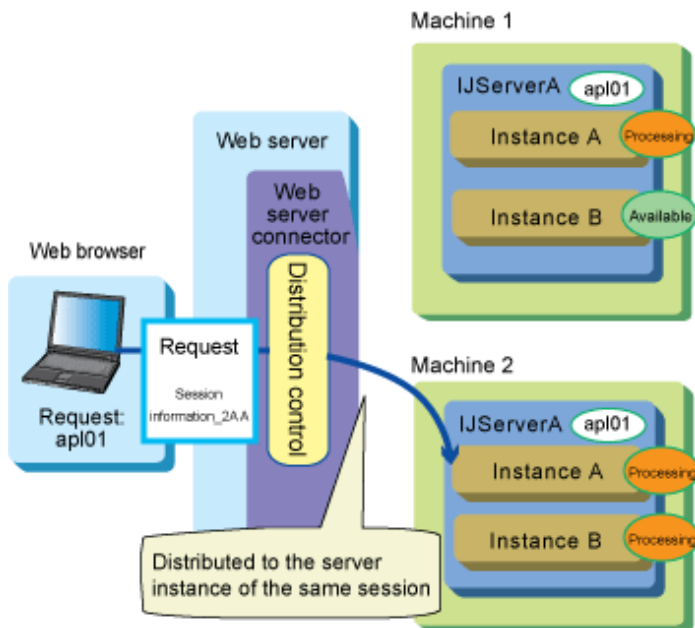
- For details on the preparations for web server connector operations, refer to "[4.7 Preparations for Operations Performed via a Web Server](#)".
- For details on tuning the web server connector, refer to "[6.4 Web Container Tuning](#)" and "[6.14.1 HTTP Communication](#)".
The maximum number of connections to the web container and the send/receive timeout can be tuned.

2.8.1 Request Distribution Control by Web Server Connector

The web server connector controls the distribution of requests so that the web container load is balanced when the web server forwards the received requests to the web container. The requests are distributed to the server instance with the lowest number of requests that are currently being processed.



However, if session management is used in the web application, requests that have session information are distributed to the server instance that created that session.



If a request could not be distributed for some reason, continuous operation of the web application is realized because the request is distributed to another server instance that can be operated.

Note that, if there are no distribution destinations, the HTTP status code "503" (Service Temporarily Unavailable) is returned to the web browser when the request is received.

2.8.2 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.)

Windows64 | **Solaris64** | **Linux64**

The Web Package is not provided for 64-bit products.

- The fault monitoring function is only used in configurations where the IJServer cluster and the web server are operated separately.

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.

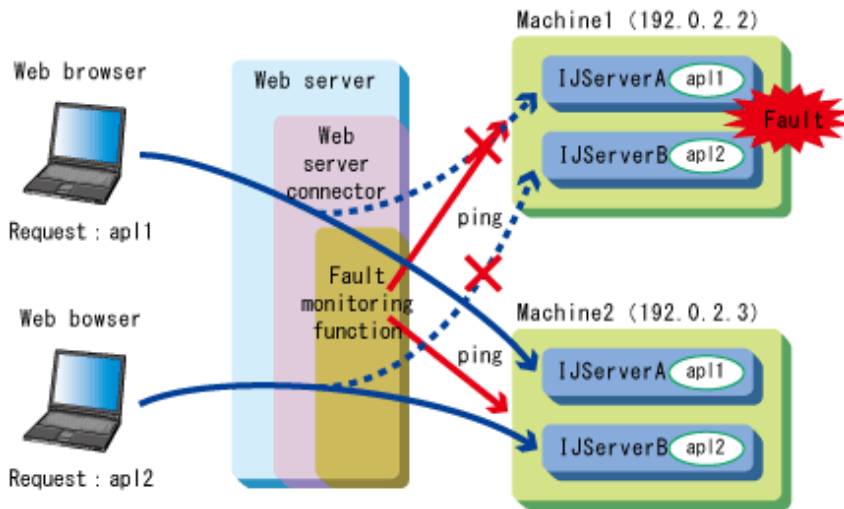
When the web server connector fault monitoring function is used to stop an IJServer cluster machine or a web container from being distributed, the web server connector stops the distributing of requests.

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).

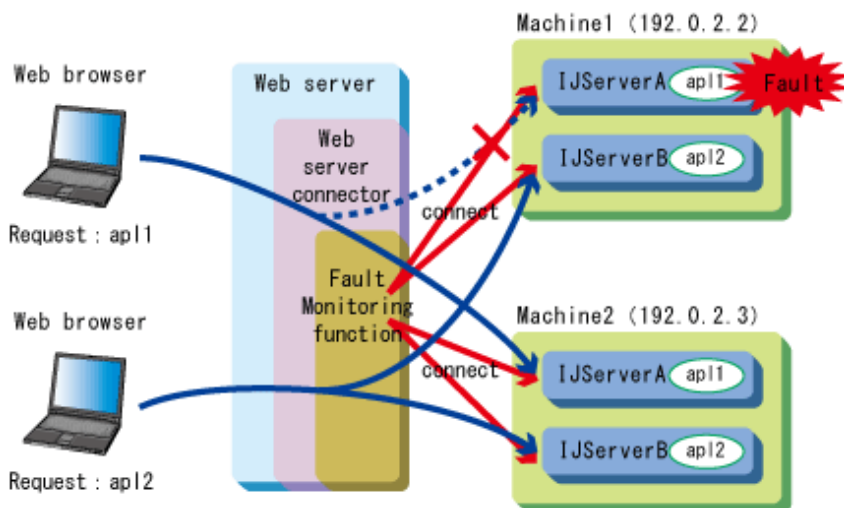


For example, as shown in the figure above, the fault monitoring function issues regular (such as every 60 seconds) pings to the IP addresses of machine 1 and machine 2 and monitors whether there is a response. If the ping response stops because of a fault in the hardware of machine 1, machine 1 is stopped 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.

2.9 Functionality Provided in EJB

Functionality Provided in the EJB Container

This product provides the following functionality.

Session bean runtime environment

For details, refer to the EJB terms.

Message-driven bean runtime environment

For details, refer to "[2.9.2 Message-driven Bean Runtime Environment](#)".

Java Persistence API

Java Persistence API is provided to manage business data in a relational database. For details, refer to "[2.11 Functionality Provided in JPA](#)".

Time monitoring functionality

For details, refer to "[2.10 Time Monitoring Functionality that can be Used in the EJB Container](#)".

For details on tuning using the EJB container functionality, refer to "[6.5 EJB Container Tuning](#)".

2.9.1 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 three state types for the session bean. 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 "[6.5.3 Enterprise Bean Instance Pooling](#)".

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 "[2.9.1 Non-communication Time Monitoring Functionality for the Stateful Session Bean Instance](#)".

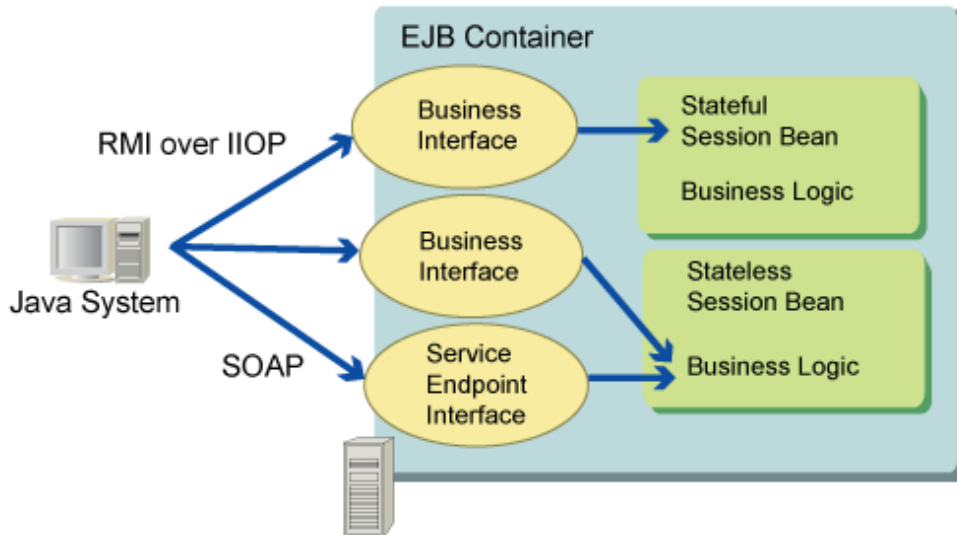
Either remove the cached instance by executing a Remove request, or, if no business methods are executed for a certain period, the relevant instance is removed by the container automatically using the "Non-communication Time Monitoring Functionality for the Stateful Session Bean Instance".

Singleton Session Bean

One instance only is created per Java VM process that runs the singleton session bean, and that instance is shared by all clients. The instance is created when the Java VM process starts. Additionally, the instance is deleted when the Java VM process stops.

Note that an instance will also be created and deleted when an application is deployed or undeployed while the Java VM process is running.

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 "[4.11 Procedure When the Web Service Client Is Used](#)".

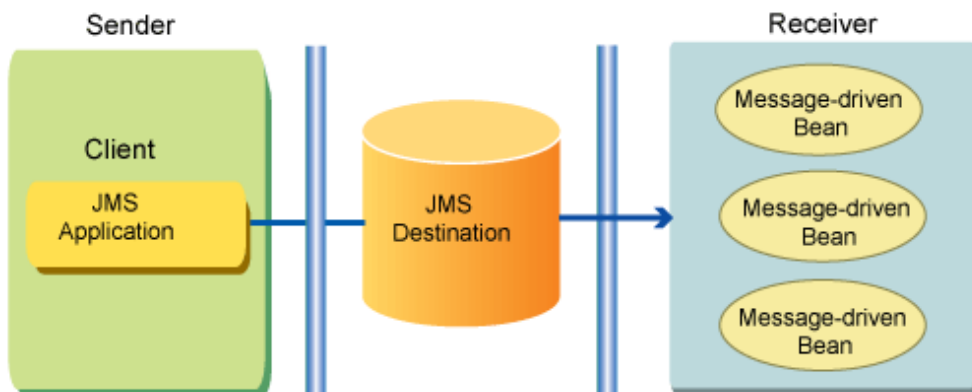
2.9.2 Message-driven Bean Runtime Environment

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 structure is shown in the figure below.



This figure shows messages 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 send destination resources

The procedure to specify each is explained below.

Specifying the JMS Connection Factory

A JMS connection factory is required to enable access to the JMS provider. To specify the JMS connection factory that will be the target of the message-driven bean, specify the JMS connection factory JNDI name in the Interstage EJB application deployment descriptor (glassfish-ejb-jar.xml) file <ejb><mdb-connection-factory> tag. For details about this tag, refer to [3.2.1.3 Interstage EJB application deployment descriptor \(glassfish-ejb-jar.xml\)](#)". For details on how to create the JMS connection factory and the tuning functionality, refer to ["4.15.5 Preparation for Sending/Receiving JMS Messages"](#).

Specifying JMS Send Destination Resources

The JNDI name of the JMS send destination resource used by the message-driven bean is specified.

For details on creating JMS send destination resources, refer to ["4.15.5 Preparation for Sending/Receiving JMS Messages"](#).

The location of the JMS send destination resources that is used by the message-driven bean that is specified is shown in the table below.

| Definition priority | Specified location | Usage pattern |
|---------------------|--|---|
| 1 | ejb-jar.xml file <message-driven-bean> <mapped-name> | When the annotation is not used, or is to be overwritten |
| 2 | @MessageDriven mappedName attribute in the source | When the annotation is used and the operating environment JNDI name is known at the time of development |

Specifying the Subscriber Identifier

When the message-driven bean model is Publish/Subscribe, **subscriber persistence** can be specified. For details on subscriber persistence, refer to the EJB terms.

When "Durable" is specified for subscriber persistence, specify the **subscriber DN (Distinguished Name)**. For details, refer to the EJB terms.



Note

Notes on when "Durable" is specified for subscriber persistence

When "Durable" is specified for subscriber persistence, the durable subscription will be registered with the name that is set for "Subscriber DN" when the message-driven bean first starts. If the durable subscription is no longer necessary, delete it using the imqcmd destroy dur command.

Receiving Messages from the Resource Adapter

To receive messages from the resource adapter, specify the name of the resource adapter that is to be used in the Interstage EJB application deployment descriptor (glassfish-ejb-jar.xml) <resource-adapter-mid> tag. If the <resource-adapter-mid> tag is not specified, or an empty string or "jmsra" is specified, JMS will be selected as the target for receiving messages. For details on the resource adapter names, refer to ["4.16.1 Deploying the Connector Module and Creation of Resource Definitions"](#). For details on the definitions, refer to ["3.2.1.3 Interstage EJB application deployment descriptor \(glassfish-ejb-jar.xml\)"](#).

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.

2.10 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
- 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 |
|--|---|--|
| Recovery time monitoring functionality from the server at the time of IIOp communication | This monitors the time from when the request was sent successfully through IIOp 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 IIOp communication socket | If the data could not be received (sent) at one time while the request is being received (sent) from the client using IIOp 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. |
| 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 ("passivates") 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 | When the EJB container performs transaction control, it monitors the time from when the transaction starts until the transaction is complete. If a transaction is still not complete even though a certain time has elapsed, it changes the transaction status to "MarkedRollback". (Note) | This can be used to detect hang-ups and processing delays during the transaction. |

| Functionality | Description of the functionality | Effect |
|--|---|--|
| Idle time monitoring functionality for pooled bean instances | This monitors the time that the pooled bean instance is not used (idle state). If a bean instance in the pool has not been used even though a certain time has elapsed, it deletes the Bean instance. | 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. |

Note) 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 "[2.5.3 Monitoring the Maximum Application Processing Time](#)".

For details on the stateful session bean instance non-communication time monitoring functionality, refer to "[2.10.1 Non-communication Time Monitoring Functionality for the Stateful Session Bean Instance](#)".

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 "[2.10.3 EJB Timer Service](#)".

2.10.1 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.

There are two stages in the stateful session bean instance non-communication time monitoring functionality. These are shown below.

1. Saving the conversational state of the bean instance in the file system temporarily (passivation)
Beans for which the business method has not been executed even if a fixed time (approximately 600 seconds) is exceeded, are passivated in the file system and then deleted from memory. When a request is issued for the passivated bean, the container reads the conversational state from the file system and activates the bean. If the passivate and activate processing was performed correctly, no message will be output by the container.
2. Deleting the saved conversational state from the file system
If the business method for the Bean was not executed after the fixed time (approximately 5400 seconds) 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 deleted Bean, the exception defined in the EJB terms is notified to the client. Obtain a new stateful session bean reference from JNDI and create the interaction again.



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.

2.10.2 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 "[3.2.1.3 Interstage EJB application deployment descriptor \(glassfish-ejb-jar.xml\)](#)".

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 "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. (Note) An error is not returned to the client.

Note If EJB is a message-driven bean, RollbackException is output.

2.10.3 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 at specified recurring intervals
- Callback at the specified date and time
- Callback at the specified date and time, and then at specified recurring intervals

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](#)

Basic Functionality

Creating a Timer

To create a timer, execute the `javax.ejb.TimerService` interface `createTimer` method. Specify the timer duration or expiration date and time (and interval if required) in the `createTimer` method arguments. The EJB timer service (`javax.ejb.TimerService` interface implementation) can be obtained using one of the following methods:

- Executing the EJB context `getTimerService` method that is passed to the EJB container
- Adding annotation `@Resource` to the `javax.ejb.TimerService` type field

Cancelling a Timer

To cancel a timer, execute the `cancel` method of the timer.

Executing Callback Processing

Each enterprise bean timer callback method is executed by the EJB timer service at the time that was specified when the timer was generated. One of the following can be defined as the timer callback method:

- Defining the `@Timeout` annotation in the method that is to be called back
- Defining the `ejbTimeout` method when the Bean class implements the `javax.ejb.TimedObject` interface

- Defining the timer callback method name in the deployment descriptor (ejb-jar.xml) file timeout-method tag

Timer Persistence

The EJB timer service uses a database to store persistent information about EJB timers. When the Interstage Java EE 6 DAS service starts to obtain the timer information from the database, the timer is activated automatically.

Timer Persistence

A database is required to store persistent information about EJB timers. Prepare the database that is to be used.

When the timer is generated in the transaction, the registration of the timer information will be committed or rolled back according to the status of the transaction when the transaction finishes. For this reason, to access other JDBC data sources or another JMS resource in the transaction that is to use the timer, it will be necessary to use the data source that supports global transactions (XADataSource).

Using global transactions will give rise to performance overheads. Therefore, to access the database using the JDBC API or JPA in the timer generation processing or callback processing, it is recommended that you also use the same data source for the persistence of the timer.

Create the table in the database as shown below. Use "EJB__TIMER__TBL" as the table name.

| Column name | JDBC data type | Length of data (max value) | Constraint |
|----------------------|----------------|---|-------------|
| TIMERID | VARCHAR | 62 | PRIMARY KEY |
| OWNERID | VARCHAR | 6 | NULL |
| CREATIONTIMERAW | BIGINT | 19 digits (9223372036854775807) (In Symfoware, this will be 18 digits) | NOT NULL |
| BLOB | LONGVARBINARY | This will depend on the primary key and information object binary size | 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) (In Symfoware, this will be 18 digits) | NOT NULL |
| SCHEDULE | VARCHAR | This will depend on the argument set for the @Schedule annotation (Note) | NULL |
| APPLICATIONID | BIGINT | 19 digits (9223372036854775807) (In Symfoware, this will be 18 digits) | NOT NULL |

Note) For details on the @Schedule annotation, refer to the EJB terms.

For details on JDBC and DBMS SQL data type mapping, refer to the JDBC driver manual.

Timer service persistence supports the databases shown below.

The Java DB database can also be used for application development and to run the sample operations, however the behavior cannot be guaranteed.

- Symfoware

- Oracle
- SQL Server

By using the default data source and connection pool for use by the EJB timer service, a Java DB database containing the table for use by the timer is created in the directory shown below. Before starting the Interstage Java EE 6 DAS service, start this database using the `asadmin` command `start-database` subcommand.

Windows32/64

C:\Interstage\F3FMisje6\glassfish\databases

Solaris32/64 Linux32/64

/opt/FJSVisje6/glassfish/databases

To use the above database, specify the default data source (`jdbc/___TimerPool`) as the Interstage Java EE 6 DAS service, timer data source. Additionally, the default connection pool is "`___TimerPool`". To change the database 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`). For details on changing the JDBC connection pool settings, refer to "[4.14 Setting the Database Environment](#)".

The DDL files for the generation of tables are stored per database in the directory shown below. Refer to the DDL before generating the table.

Windows32/64

C:\Interstage\F3FMisje6\glassfish\lib\install\databases

Solaris32/64 Linux32/64

/opt/FJSVisje6/glassfish/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 table for use by the timer is explained below.

| Table access timing | Purpose |
|--|---|
| When the timer is registered | To add the timer record. |
| Immediately before the callback method is executed | To check whether the timer has been canceled. |
| Immediately after the callback method is executed | To update the date and time that the timer callback method is executed. |
| When the timer <code>getInfo</code> method is executed for the first time | To read the timer information object. |
| When the timer cancel method is executed | To delete the timer record. |
| When the <code>TimerService</code> <code>getTimers</code> method is executed | To read the timer records registered in the Interstage Java EE 6 DAS service. |
| When the Interstage Java EE 6 DAS service is started | To read the registered timers. |
| Undeployment of the module (Note) | To delete all the timers related to the module. |

| Table access timing | Purpose |
|-----------------------------------|---|
| Redeployment of the module (Note) | To delete all the timers related to the module. |
| Deactivation of the module (Note) | To delete all the timers related to the module. |

(Note) The table will not be accessed while the Interstage Java EE 6 DAS service is in a stopped state. The table will only be accessed, and the timer deleted, while the Interstage Java EE 6 DAS service is running.

If the data source access fails because of an error when the Interstage Java EE 6 DAS service starts, the EJB5108 warning message will be output to the server log and the timer service will be disabled. In this case, the EJB timer service cannot be obtained.

If an inconsistency has occurred in the table or unnecessary timers remain, use the DBMS tool to search for and delete the unnecessary timer rows.

The data that is stored in the table is explained below.

| Column name | Data value | Explanation of the data contents |
|----------------------|------------------------|--|
| TIMERID | String | This is the internal ID that contains the Interstage Java EE 6 DAS service instance name. |
| OWNERID | String | This is the Interstage Java EE 6 DAS service instance name. |
| CREATIONTIMERAW | Milliseconds (Note) | This is the date and time the timer is generated. |
| BLOB | Binary | This is the information object that is passed by the last argument of the createTimer method when the timer is generated. |
| CONTAINERID | Number | This is the internal ID of the Bean that implements TimedObject. |
| STATE | Number | This is the timer state. - 0 (running) - 1 (canceled) |
| PKHASHCODE | Number | This is an internal code. |
| INTERVALDURATION | Milliseconds | This is the interval between deliveries when callback processing is executed repeatedly. If there is no repeated execution, this will be 0. |
| INITIALEXPIRATIONRAW | Milliseconds (Note) | This is the date and time of the execution of the initial callback processing. |
| LASTEXPIRATIONRAW | Milliseconds (Note) | This is the date and time of the execution of the previous callback processing. If processing has not been executed yet, this will be 0. |
| SCHEDULE | String | This is the information object that is used in the @Schedule annotation. For details on the @Schedule annotation, refer to the EJB terms. |
| APPLICATIONID | Number | This is the internal Bean ID. |

(Note) The date and time settings are in milliseconds, and start from 0:00:00 on 01/01/1970.

Settings of the Timer Service

The EJB timer service timer data source can be set using the asadmin command get/set subcommands. For details, refer to "9.1 asadmin".

Accuracy of Timer and Operation when the Process is Delayed

In a high-load environment, the start time of a timer may be delayed.

If timer processing does not finish before the subsequent timer is due to execute, the subsequent timer will wait for the timer that is running,

to finish. After the timer that is running finishes, timers for which the scheduled execution time has past will be executed immediately. When an interval timer is scheduled, the processes that have a scheduled start time that has past, will be started consecutively.

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 following features that are provided in JPA are also explained:

- [Supporting Java Data Types and DBMS SQL Data Types Defined in the Entity](#)
- [Functionality for the Automatic Generation of Primary Key Values](#)
- [Lock Functionality for the Line](#)
- [SQL Log Functionality](#)

Note that details on JPA tuning are described in the following document:

- [6.6 JPA Tuning](#)



Note

Notes on the use of JPA in Interstage are described in "[1.3.8 Notes About JPA](#)".

2.11.1 JPA Runtime Environment

The runtime environments that can use JPA are explained below. The JPA runtime environment is a container that executes the Java Persistence API. It runs on the same container as applications that call JPA (for example, servlet or EJB).

| 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 | YES |
| Java SE (standalone applications) | - | - | Restrictions (Note) |

| Runtime environment | Container manager entity manager | Application management entity manager | |
|---------------------|----------------------------------|---------------------------------------|----------------------------|
| | JTA transaction | JTA transaction | Resource/local transaction |
| Applet container | - | - | - |

YES: Supported

NO: Not supported

Restrictions: Can be used only for development

Note: The application management entity manager is also supported in Java SE standalone 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 using the Interstage persistence provider, do not define the deployment descriptor (persistence.xml) <provider> tag. Additionally, do not specify the persistence unit property that corresponds to the <provider> tag in the javax.persistence.Persistence.createEntityManagerFactory(String, Map) method.

When this is used in a Java SE environment, add the following modules to the class path.

Windows32/64

```
C:\Interstage\F3FMisjee\glassfish\modules\org.eclipse.persistence.jpa.jar
```

Solaris32/64 Linux32/64

```
/opt/FJSVisjee/glassfish/modules/org.eclipse.persistence.jpa.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, use the static weaving function.

Use the static weaving function according to the procedure shown below.

1. Execute Static Weaver

Execute Static Weave using the following command:

```
java org.eclipse.persistence.tools.weaving.jpa.StaticWeave [arguments] <source> <target>
```



Example

Execution example for Static Weaver

```
java org.eclipse.persistence.tools.weaving.jpa.StaticWeave -persistenceinfo C:\myjar-containing-persistence.xml.jar -classpath C:\classpath1;C:\classpath2 C:\myjar-source.jar C:\myjar-target.jar
```

2. Set the eclipselink.weaving attribute

Set static in the eclipselink.weaving attribute of persistence.xml.

 **Example****Settings example for the eclipselink.weaving attribute**

```
<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_2_0.xsd"
  version="2.0">
  <persistence-unit name="com.company.my.pu">
    ~ omitted ~
    <properties>
      <property name="eclipselink.weaving" value="static"/>
    </properties>
  </persistence-unit>
</persistence>
```

 **Note****Notes on the Interstage persistence provider**

An exception that starts with `org.eclipse.persistence` may be thrown as the exception that is returned by JPA. The exception class that starts with `org.eclipse.persistence` 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 standalone applications when the exception that occurred in JPA is returned to the Java SE standalone 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 "Class Loader".

For details on the method that is used to set the class path for the Java EE application client, refer to "[4.9.1 Setting the Java EE Application Client Environment](#)".

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_2_0.xsd"
  version="2.0">
  <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 "F.3 Database".

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 6 Environment

When JPA is used in an EJB, web, or application client container, perform the following tasks:

Prepare the data source. For details on how to create the data source, refer to "4.14 Setting the Database Environment".

Define the data source name for the prepared data source in the deployment descriptor (persistence.xml) `<jta-data-source>` or `<non-jta-data-source>`.

In this product, the data source name is obtained from the location of the definition in the order shown below.

- Operations that use JTA transactions

1. `<jta-data-source>`

- Operations that use non-JTA transactions (resource local transactions)

1. `<non-jta-data-source>`
2. `<jta-data-source>`

If the Interstage persistence provider is used in the EJB or web container but the data source name has not been defined, the default data source name ("jdbc/___default") will be 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 where the JTA transaction is used

```
<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_2_0.xsd"
  version="2.0" >
  <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 standalone 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 |
|--------------------------------------|---|
| <code>eclipselink.jdbc.driver</code> | This is the JDBC driver class name (the <code>java.sql.Driver</code> implementation class). |
| <code>eclipselink.jdbc.url</code> | This is the JDBC URL assumed by the driver for access to the database. |

| Persistence unit property name | Explanation |
|--------------------------------|---|
| eclipselink.jdbc.user | This is the user name used for authentication access to the database. |
| eclipselink.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 standalone 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_2_0.xsd"
  version="2.0" >
  <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="eclipselink.jdbc.driver"
        value="oracle.jdbc.OracleDriver"/>
      <property name="eclipselink.jdbc.url"
        value="jdbc:oracle:thin:@dbhost:1521:mysid"/>
      <property name="eclipselink.jdbc.user"
        value="user1"/>
      <property name="eclipselink.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 |
|--|---|
| <code>char</code> , <code>java.lang.Character</code> | <code>java.lang.String</code> |
| <code>char[]</code> , <code>java.lang.Character[]</code> | <code>java.lang.String</code> |
| <code>java.math.BigInteger</code> | <code>java.math.BigDecimal</code> |
| <code>java.util.Date</code> | Defined TemporalType |
| <code>java.util.Calendar</code> | Defined TemporalType |
| <code>enum(ordinal)</code> | <code>java.lang.Integer</code> |
| <code>enum(String)</code> | <code>java.lang.String</code> |
| Other | <code>byte[]</code> |



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 feature that is managed in the Interstage persistence provider. When the primary key executes a persistence operation (EntityManager persist method) for a parent Entity that has not been set yet, the persistence provider integrates with DBMS to assign the primary key to the Entity automatically. Before using this feature, a database table must be created manually.

The Interstage persistence provider provides the generation patterns shown below that are stated in the JPA specifications, however which generation patterns are supported will depend on the DBMS.

| Generation pattern | 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. |

Note) The behavior cannot be guaranteed if a value other than those above is specified as the generation pattern.

The policies selected and default values are explained in the table below.

The items in the table are specific to annotation definitions. If this is specified in the deployment descriptor (orm.xml), the annotation definition should be read as the corresponding tag definition in the deployment descriptor (orm.xml).

- The values for when @GeneratedValue is defined, and the attribute default values, are as shown below.

| 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, the TableGenerator that uses the attribute default value will be used. |
| | SQL Server JavaDB | 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, the TableGenerator that uses the attribute default value will be used. |
| TABLE | All | If generator is omitted, TableGenerator will be used. The TableGenerator name will be SEQ_GEN_TABLE. If this Generator is not defined, the TableGenerator that uses the attribute default value will be used. However, if the SequenceGenerator name is specified in generator, SequenceGenerator will be used. |
| SEQUENCE or IDENTITY | Symfoware Oracle | SequenceGenerator will be used. If generator is omitted, the name will be SEQ_GEN_SEQUENCE, and the default value will be used for the other attributes. However, if the TableGenerator name is specified in generator, TableGenerator will be used. |
| | SQL Server JavaDB | The IDENTITY column will be used. However, if the TableGenerator name is specified in generator, TableGenerator will be used. |

- The @SequenceGenerator sequenceName attribute default value is the same value as @SequenceGenerator name.
- The @TableGenerator attribute default values are as follows:

| Attribute name | Default value |
|----------------|---------------|
| table | SEQUENCE |
| pkColumnName | SEQ_NAME |

| Attribute name | Default value |
|-----------------|---------------------------------------|
| pkColumnValue | Same value as name of @TableGenerator |
| valueColumnName | SEQ_COUNT |

Note

Notes on the primary key value automatic generation feature

- The default value "SEQ_GEN_SEQUENCE", " SEQ_GEN_IDENTITY " cannot be specified in the TableGenerator name.
- The default value "SEQ_GEN_TABLE", " SEQ_GEN_IDENTITY " cannot be specified in the SequenceGenerator name.
- Specify a unique value for the Generator name, regardless of the Generator type.
- For notes on other DBMS-specific peculiarities, refer to "[1.3.8 Notes About JPA](#)".

2.11.6 Lock Functionality for the Line

When update processing is performed from search processing for the same DBMS row at the same time from multiple transactions, an error such as a deadlock may occur, in which case the consistency of the data in the transaction is not maintained.

To solve this problem, the **Optimistic Locking feature** and **Pessimistic Locking feature** can be selected.

If READ_COMMITTED is used for the isolation level (**Note**), it is recommended that the JPA **Optimistic Locking feature** be specified. When the table is updated, the Optimistic Locking feature checks whether a record has been updated in other transactions. If it has, it will return an error, therefore the consistency of the data will be maintained. The period that the row is locked is short, therefore this feature is effective in high-load environments in which the update frequency of identical records is low.

If a higher level than READ_COMMITTED (REPEATABLE_READ, SERIALIZABLE) is used for the isolation level (**Note**), it is recommended that the **Pessimistic Locking feature** be specified. The Pessimistic Locking feature may be able to prevent deadlock errors, therefore it is effective when the update frequency of identical records is high.

Note) For details on the isolation level settings, refer to the JDBC driver manual.

Defining the Optimistic Locking feature

Specify the Optimistic Locking feature by adding the "@Version" annotation to the column that means version number in the Entity class.

The method used to specify the Optimistic Locking feature is shown below.

```
@Version
@Column(name = "OPT_LOCK_VER")
private int version;
```

Defining the Pessimistic Locking feature

The Pessimistic Locking feature is specified in the deployment descriptor (orm.xml) lock-mode tag, annotation (@NamedQuery lockMode attribute), Query.setLockMode method, EntityManager.find method, or EntityManager.lock method.

The method used to specify the Pessimistic Locking feature in the annotation is shown below.

```
@NamedQuery(name="Order.findBigOrders",
    query="SELECT o FROM Order o WHERE o.quantity > :minimum",
    lockMode=javax.persistence.LockModeType.PESSIMISTIC_READ)
```

The method used to specify the Pessimistic Locking feature using the Query.setLockMode method is shown below. Unlike in the example above, this feature is only used in the execution of this method. However, in the above method, this feature is used in all parts where the Order.findBigOrders query is used.

```
Collection bigOrders = em.createNamedQuery("Order.findBigOrders")
    .setParameter("minimum", "1000")
    .setLockMode(javax.persistence.LockModeType.PESSIMISTIC_READ)
    .getResultList();
```



Notes on the row lock feature

- The row lock feature is a JPQL query feature. It cannot be used in the find method or the get access method for a relationship, for example.
- Even if the row lock feature is used, a deadlock may occur depending on the DBMS specification. In this case, try re-executing the processing in which the deadlock occurred.
- If another lock feature provided in the database is used, investigate overwriting the Java Persistence Query Language (JPQL) query that is defined in the NamedQuery annotation with a native SQL query, and defining the SQL query that will use the database lock feature.

2.11.7 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 |
|--------------------------------|-------------------------------|--|
| eclipselink.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_2_0.xsd
    version="2.0">
  <persistence-unit name="com.company.my.pu">
    <jta-data-source>jdbc/myDatasource</jta-data-source>
    <properties>
      <property name="eclipselink.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.

```

[#/2013-02-25T11:49:06.390+0800|FINE|glassfish3.1.1|org.eclipse.persistence.session.file:/C:/Interstage/F3FMisje6/var/
domains/domain1/applications/eclipseLink-SQLLogWeb/WEB-INF/classes/_eclipseLink-SQLLogWeb.sql|
_ThreadID=22;_ThreadName=Thread-2;ClassName=null;MethodName=null;JPA0021: SQL statement=INSERT INTO
DEPT (DEPTNO, DNAME, LOC) VALUES (?, ?, ?)
bind => [3 parameters bound]|#]
[#/2013-02-25T13:27:25.484+0800|WARNING|glassfish3.1.1|org.eclipse.persistence.session.file:/C:/Interstage/
F3FMisje6/var/domains/domain1/applications/eclipseLink-SQLLogWeb/WEB-INF/classes/_eclipseLink-SQLLogWeb|
_ThreadID=16;_ThreadName=Thread-2;JPA0020: caught throwable
Local Exception Stack:
Exception [EclipseLink-4002] (Eclipse Persistence Services - 2.3.0.qualifier):
org.eclipse.persistence.exceptions.DatabaseException
Internal Exception: java.sql.SQLIntegrityConstraintViolationException: The statement was aborted because it would have
caused a duplicate key value in a unique or primary key constraint or unique index identified by 'SQL120905104540510'
defined on 'DEPT'.
Error Code: -1
Call: INSERT INTO DEPT (DEPTNO, DNAME, LOC) VALUES (1, 'dname', 'loc')
Query: InsertObjectQuery(com.pojo.Dept@51e658)

```

When this functionality is used in Java SE standalone 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. Additionally, if this property is specified for both the Java VM option and the deployment descriptor (persistence.xml), the settings specified in the deployment descriptor (persistence.xml) will have the higher priority.

Example

An example of the output of the SQL log in Java SE environment is shown below.

```

[EL Fine]: 2013-02-25 13:23:34.671--ClientSession(17912146)--Connection(238
30114) --JPA0021: SQL statement=select * from newdept where deptno =?
bind => [1 parameter bound]

```

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 EE6.

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 asadmin command.

Point

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 `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.



Note

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 6 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 6 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 standalone 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 "3.1.5 Creating the Client Application".

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 standalone client".

Note

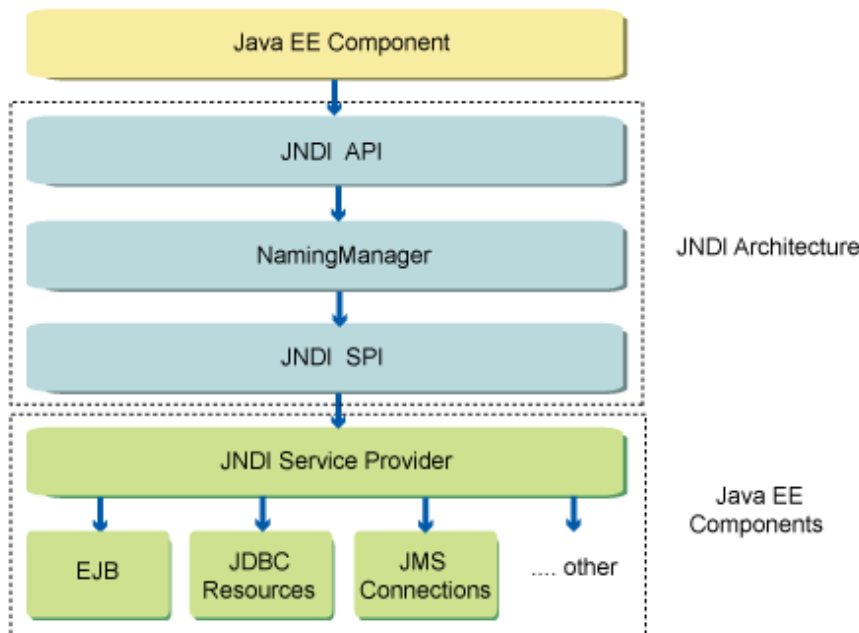
The application client container requires the server JNDI connection, regardless of the application processing. To call applications on the server across a firewall, the firewall settings must be configured so that access is allowed from the application client container to the server IIOP listener port. We do not, however, recommend doing this, as it greatly increases the security risk.

2.14 JNDI

Java Naming and Directory Interface (JNDI) makes it possible to access the various naming services and directory services using the standard API. The JNDI architecture is comprised of API (Application Programming Interface) and SPI (Service Provider Interface).

In this product, a JNDI SPI implementation that accesses various IJServer cluster objects is provided. This implementation is called the "JNDI service provider". Accordingly, the Java EE component can access the various objects that are provided by the JNDI service provider using the JNDI API.

The JNDI configuration is described below. NamingManager in the figure below calls the JNDI service provider that implements the JNDI SPI based on the specified environment property. It is a class that returns and manages the objects of the specified name. API, NamingManager, and SPI are provided together in Java SE.



This section explains the following.

- [Using Dependency Injection](#)
- [Naming Service and Environment Naming Context](#)
- [Hierarchical Object Management](#)

Using Dependency Injection

From Java EE, a new method of accessing objects that are managed in the container has been provided. This new method is called Dependency Injection (DI), and is the same as for JNDI. When JNDI is used, the objects that are managed in the application server must be obtained by the Java EE component by executing the lookup method. However, when DI is used, and an annotation has been defined in the Java EE component, the defined annotation is read by the container dynamically and the object information is injected if necessary. The advantages of using DI are explained below.



Note

The container obtains the target object when the Java EE component instance is generated and injects it in the annotation. After the instance is generated, the object will not be injected again. Therefore, once the object is deleted it cannot be used any more. In particular, the injection of stateful session bean is not recommended because the instance may be deleted by the stateful session bean instance non-communication time monitoring feature.

Reduction in testing man-hours

When JNDI is used, the reference destination application server environment must have been built. However, when DI is used, it can also run as a normal application, therefore standalone testing is possible.

Reduction in application code volume

When DI is used, the container will read the annotation dynamically and inject an object if necessary, therefore the application code volume will be reduced. Additionally, in the existing Java EE component, it is necessary to define the application behavior in the XML file. However, when DI is used, the application behavior can be defined as an annotation, therefore the amount of definitions in the XML file is reduced.

By using DI as shown above, applications can be developed more efficiency. For details on using DI, refer to the Java EE terms. JNDI can also be used in the existing way.

Naming Service and Environment Naming Context

Java EE JNDI provides the following object management mechanisms.

Naming Service

This is a naming service that manages the objects on IJServer cluster using a unique JNDI name.

Environment Naming Context

This is a naming context that manages objects in the java:comp/env environment naming context per Java EE component, based on the content defined in the Java EE component deployment descriptor file.

The general versatility of the application will improve; therefore it is recommended that the environment naming context be used.

For details on the characteristics of each, refer to "[2.14.1 Naming Service](#)" and "[2.14.2 Environment Naming Context](#)". Additionally, for details on the specification differences, 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, if the object was registered using the JNDI name "jdbc/MyDS", the "jdbc" part will be called the subcontext, and objects with the name "MyDS" will be managed in the subcontext. As in the case of "jdbc/MyCmp/MyDS", for example, subcontexts of multiple hierarchies can be maintained.

The JNDI name must be unique within the subcontext. Additionally, even if an alias is used for the JNDI name, the registration attempt will fail if the subcontext name and the actual object name are duplicated.

When the object is referenced by the application, generally the object reference is obtained by specifying the JNDI name. As another reference method, since objects are managed hierarchically as shown above, the objects can also be referenced hierarchically from the

subcontext. For example, when the JNDI name is "jdbc/MyDS", the JNDI API lookup method is executed, the subcontext (javax.naming.Context object) with the name "jdbc" is obtained, and it will be possible to obtain objects registered for that subcontext even if the lookup method is executed with the name "MyDS".

2.14.1 Naming Service

When IJServer cluster is started, the resources that are defined in IJServer cluster, or the deployed Enterprise JavaBean, will be registered in the naming service. For example, if a resource is defined as a JDBC resource with the JNDI name "jdbc/Symfo", the object will be registered in the naming service with the name "jdbc/Symfo". The application will be able to obtain the registered object when the name "jdbc/Symfo" is specified and the JNDI lookup method is executed. For this reason, the JNDI name that is defined in IJServer cluster must be unique.

- [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

The objects that are registered in the naming service are shown below.

| 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 resource | JNDI name specified when the JDBC resource is defined |
| JMS connection factory | JNDI name specified when the JMS connection factory is defined |
| JMS destination | JNDI name specified when the JMS destination is defined |
| Connector resource | JNDI name specified when the connector resource is defined |
| admin object resource | JNDI name specified when the admin 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

- Local call Enterprise JavaBeans and web service references are not managed in IJServer cluster naming service. To use these objects, use the environment naming context or DI.
- Do not reference the JavaMail session from the naming service. The javax.mail.Session object will not be returned. When using the JavaMail session, use the environment naming context.

JNDI Names for the Enterprise JavaBean Used for Remote Calls

The JNDI name for the Enterprise JavaBean that is used for remote calls is determined according to the priority shown below. In the Enterprise JavaBean that is used for remote calls, the Home/Remote interface or a remote business interface is defined. To call the Enterprise JavaBean from the client, obtain the object using the JNDI name that is determined below, and call the interface method for that object.

1. [Interstage deployment descriptor \(glassfish-ejb-jar.xml\) file definition](#)
2. [deployment descriptor \(ejb-jar.xml\) file definition](#)

3. [Specifying the @Stateless/@Stateful/@Singleton annotation mappedName attribute](#)
4. [Interface Names](#)

Based on the JNDI name that was determined above, objects with the following names will be registered in the naming service.

| Name | Explanation |
|--|--|
| JNDI name | The business interface object is registered. In EJB 2.x or earlier, the Home interface object is registered. Normally, this name is used. |
| JNDI name#business interface name | This is the JNDI name of each business interface. If there are multiple remote business interfaces, each interface method will be called with this name. For details, refer to " JNDI Names for Multiple Remote Business Interfaces ". |
| JNDI name__3_x_Internal_RemoteBusinessHome__ | This is used for internal control. Do not use it from an application. |

The methods used to specify each name are explained below.

Interstage deployment descriptor (glassfish-ejb-jar.xml) file definition

For the target Enterprise JavaBean, specify the JNDI name in the Interstage deployment descriptor (glassfish-ejb-jar.xml) file jndi-name tag. An example of the definition is shown below.

```
<ejb>
  <ejb-name>CartBean</ejb-name>
  <jndi-name>Cart</jndi-name>
</ejb>
```

deployment descriptor (ejb-jar.xml) file definition

Specify the JNDI name in the deployment descriptor (ejb-jar.xml) file mapped-name tag. An example of the definition is shown below.

```
<enterprise-beans>
  <session>
    <ejb-name>CartBean</ejb-name>
    <mapped-name>Cart</mapped-name>
    ...
  </session>
</enterprise-beans>
```

Specifying the @Stateless/@Stateful/@Singleton annotation mappedName attribute

For the target Enterprise JavaBean, specify the JNDI name in the @Stateless/@Stateful/@Singleton annotation mappedName attribute. An example of the definition is shown below.

```
@Stateless(mappedName="Cart")
public class CartBean implements CartObject { ... }
```

Interface Names

If none of the above is specified, the default JNDI name will be determined by the target Enterprise JavaBeans interface definition according to the following logic.

| Definition of the Home/Remote interface | Total number of remote business interfaces | Default JNDI name | Example |
|---|--|-------------------|---------|
| None | 0 | None | None |

| Definition of the Home/ Remote interface | Total number of remote business interfaces | Default JNDI name | Example |
|--|--|---|----------------------------|
| None | 1 | Remote business interface full package name | com.mycompany.CartBusiness |
| None | 2 or more | None (Note 1) | None |
| Yes | 0 | Home interface full package name | com.mycompany.CartHome |
| Yes | 1 or more | None (Note 2) | None |

Note 1)

The JNDI name must be defined. Additionally, when the actual object is obtained from the client, the JNDI name that will be used will vary depending on the interface that is used. For details, refer to "[JNDI Names for Multiple Remote Business Interfaces](#)".

Note) If the JNDI name is not defined, the JNDI name will be recognized as being null characters (a string with a length of 0 characters). For this reason, the object will be registered with the name "# interface name" or "_3_x_Internal_RemoteBusinessHome__", which may be duplicated with other JNDI names. For this reason, the JNDI name must be defined.

Note 2)

The JNDI name must be defined. When the actual object is obtained from the client, the Home interface object will be obtained when the JNDI name that was defined is specified. When the remote business interface is used, the JNDI name that will be used will vary depending on the interface that is used. For details, refer to "[JNDI Names for Multiple Remote Business Interfaces](#)".

Note) If the JNDI name is not defined, an error will occur when the application starts and it will not be possible to call the application. For this reason, the JNDI name must be defined.

JNDI Names for Multiple Remote Business Interfaces

If there are multiple Enterprise JavaBean remote business interfaces, the JNDI name that will be used will vary depending on the interface that is used. After the JNDI name specified in the Enterprise JavaBean, insert a number sign (#) then specify the interface name that is to be used. For example, when com.ejb.CartBusiness1 and com.ejb.CartBusiness2 are defined as the remote business interfaces for the Enterprise JavaBean, 'Cart' is specified as the JNDI name. In this case, specify the JNDI name as shown below.

```
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 client uses IIOP communication to access the remote server naming service, and can reference the objects that are managed by the naming service. To access the naming service via a remote connection, configure the IIOP communication environment settings or tuning parameter settings. Additionally, the connection destination host name and IIOP port number must also be set in the client. For details on how to set the connection destination, refer to "[4.12 Setting the JNDI Environment](#)".

Updating the Naming Service from the JNDI API

It is also possible to update the naming service information (register/delete an object) from the application by executing the JNDI API bind method or unbind method. In this case, note the following:

- If an object has been registered, it will only be enabled in the naming service of the registered process. It will not be registered in the naming service of other processes in the IJServer cluster.

- If the process in which the object was registered is paused, the registered object will be deleted. It will be necessary to register the object again when the process is restarted.
- Do not delete objects that are registered in the container, or change their names. If you do, then an abnormality may occur.

JNDI Browser

The list of JNDI names for objects registered in the naming service can be referenced using the JNDI browser of the asadmin command list-jndi-entries subcommand.

2.14.2 Environment Naming Context

The naming service is a mechanism that manages objects in the system uniformly 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 content defined in the Java EE component deployment descriptor file.

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 reference name (logical name) that is defined in the deployment descriptor file can be defined in the Interstage deployment descriptor file to map to the JNDI name (physical name). In Java EE components for which this mapping has been defined, by specifying the reference name and then executing the lookup method, the JNDI name object that is mapped to that reference name can be looked up. The correspondence relationship between the reference name and JNDI name can be defined per Java EE component, and the environment naming context is independent. This provides the following advantages:

Development is possible without the need to be aware of the actual environment

Java EE components can be developed without the need to be aware of the JNDI name at the time of the actual operation. For this reason, once a Java EE component has been created, it can be deployed to various environments without modifying the application, just by changing the definition file.

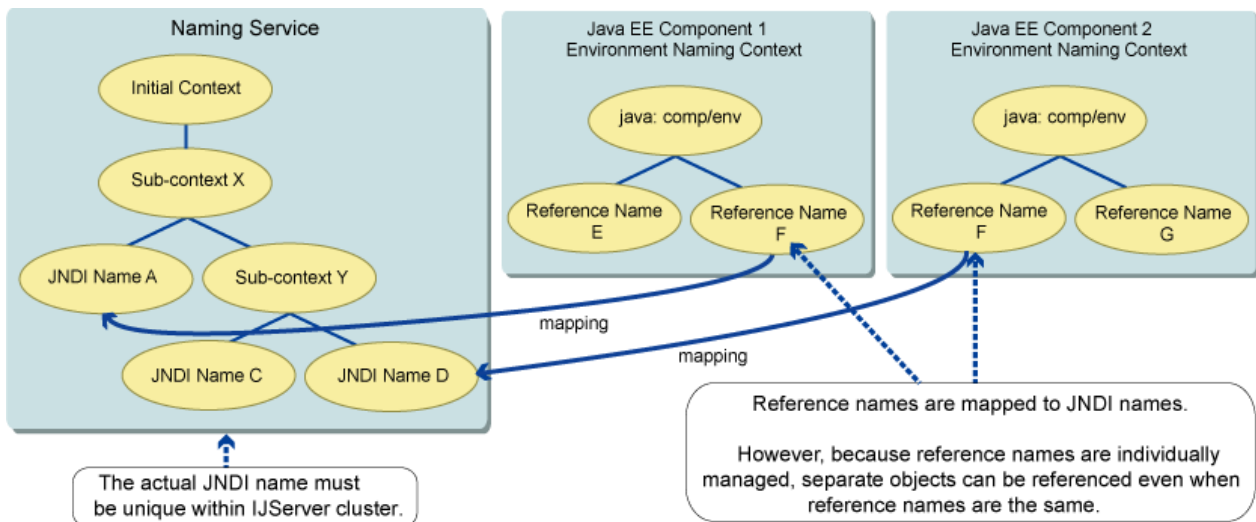
Applications can be developed independently

Even if the same reference name is used between Java EE components, separate objects in the Java EE components can be obtained using the lookup method, just by editing the definition. There is no need to modify the application. For this reason, development is possible without having to worry about Java EE component name duplication.

Relationship Between the Naming Service and the Environment Naming Context

The relationship between the naming service and the environment naming context is shown in the figure below.

In the example shown, Java EE components 1 and 2 exist in IJServer cluster. The reference name "F" is defined in both, however, by mapping reference name "F" of Java EE component 1 to JNDI name "X/A" and reference name "F" of Java EE component 2 to "X/Y/D", each Java EE component can reference separate objects.



Objects that can be Referenced by the Environment Naming Context

The objects that can be referenced in the environment naming context are shown below. The corresponding annotations are also shown.

| Reference object | Name specified in the JNDI lookup method | Annotation | | |
|---|--|---------------------|---|-----------|
| Information injected in the annotation | For details, refer to " Referencing the Information that was Injected 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 resource | java:comp/env/[resource reference name] | @Resource | | |
| JavaMail session | | | | |
| URL connection factory | | | | |
| JMS connection factory | | | | |
| Connector resource | | | | |
| Custom resources | | | | |
| External resources | | | | |
| JMS destination | | | java:comp/env/[Destination reference name] | @Resource |
| admin object resource | | | java:comp/env/[resource environment reference name] | @Resource |
| JPA entity manager factory | java:comp/env/[persistence unit reference name] | @PersistenceUnit | | |
| Container management 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 relationship between the above reference names and the deployment descriptor file definitions are explained below.

| Environment entry and reference name | Deployment descriptor file definition item |
|--------------------------------------|--|
| Environment entry name | <env-entry> tag <env-entry-name> tag value |
| EJB reference name | <ejb-ref> tag <ejb-ref-name> tag value |
| EJB local reference name | <ejb-local-ref> tag <ejb-ref-name> tag value |
| Resource reference name | <resource-ref> tag <res-ref-name> tag value |
| Destination reference name | <message-destination-ref> tag <message-destination-ref-name> tag value |
| Resource environment reference name | <resource-env-ref> tag <resource-env-ref-name> tag value |
| Persistence unit reference name | <persistence-unit-ref> tag <persistence-unit-ref-name> tag value |
| Persistence context reference name | <persistence-context-ref> tag <persistence-context-ref-name> tag value |

Referencing the Information that was Injected in the Annotation using JNDI

The information that was injected in the annotation will be registered. For example, in the "com.example" package, "MyApp" class, when the Java EE annotation is specified in the "myDatabase" field, the value that was injected in the annotation can be obtained with the name "java:comp/env/com.example.MyApp/myDatabase".

Mapping the Reference Name and the JNDI Name

The reference name (logical name) that is defined in the deployment descriptor file can be defined in the Interstage deployment descriptor file to map to the JNDI name (physical name). In Java EE components for which this mapping has been defined, by specifying the reference name and then executing the lookup method, the JNDI name object that is mapped to that reference name can be looked up. The relationship between the reference names that are defined in the deployment descriptor file and the actual JNDI name that is registered in the naming service is explained below.

- [EJB reference names](#)
- [EJB local reference names](#)
- [Persistence unit reference names](#)
- [Persistence context reference names](#)
- [Resource reference names](#)
- [Destination reference names](#)
- [Resource environment reference names](#)

EJB reference names

The JNDI name for the EJB reference name is determined according to the following priority.

1. [Interstage deployment descriptor file JNDI name that is defined for the EJB reference name](#)
2. [deployment descriptor file mapped-name that is defined for the EJB reference name](#)
3. [deployment descriptor file ejb-link that is defined for the EJB reference name](#)

4. deployment descriptor file interface name that is defined for the EJB reference name

The definition methods for each of these are explained below.

Interstage deployment descriptor file JNDI name that is defined for the EJB reference name

When the reference name and JNDI name are defined in the Interstage deployment descriptor file, the reference name will be mapped to the JNDI name that was defined.

```
<ejb-ref>
  <ejb-ref-name>ejb/MyEjb</ejb-ref-name>
  <jndi-name>CartBean</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:hostname: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 (29700) will not be used, so you must specify a port number.

The port number can be checked in the definition item below.

- \${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 29700, and the JNDI name is CartBean.

```
corbaname:iiop:myHost:29700#CartBean
```

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:29700#CartBean</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 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.

deployment descriptor file mapped-name that is defined for the EJB reference name

When the mapped-name tag is specified in the deployment descriptor file EJB reference (ejb-ref tag), it will be mapped to the JNDI name that was specified.

```
<ejb-ref>
  <ejb-ref-name>ejb/MyEjb</ejb-ref-name>
  <remote>com.ejb1.CartRemote</remote>
  <mapped-name>CartBean</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.

deployment descriptor file ejb-link that is defined for the EJB reference name

When another Enterprise JavaBean is called from the Java EE component, by defining ejb-link when the deployment descriptor file EJB reference (ejb-ref tag) is defined, there will be no need to map the reference name and JNDI name, even if they are different. When calling Enterprise JavaBeans that are contained in the same ejb-jar file, specify "ejb-name" of the Enterprise JavaBean that will be called in "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, when calling Enterprise JavaBeans that are contained in different ejb-jars from the same ear, the definition is as shown below. Define the relative path (in the following example, this is "ejb1.jar") of the ejb-jar file that is to be called for the caller ejb-jar file, insert a number sign (#), then define the ejb-name of the Enterprise JavaBean that is to be called (in the following example, this is "CartBean").

```
<ejb-ref>
  <ejb-ref-name>ejb/MyEjb</ejb-ref-name>
  <remote>com.acme.FooRemote</remote>
  <ejb-link>ejb1.jar#CartBean</ejb-link>
</ejb-ref>
```

deployment descriptor file interface name that is defined for the EJB reference name

The interface name that is specified in the deployment descriptor file <ejb-ref><home> tag will be mapped to the JNDI names shown below, depending on the interface name that is specified in the <ejb-ref><remote> tag.

| Interface name specified in the <ejb-ref><home> tag | Interface name specified in the <ejb-ref><remote> tag | JNDI name |
|---|---|--------------------------------|
| None | Yes | Remote interface name (Note) |
| Yes | Yes | Home interface name |
| Yes | None | Home interface name |
| None | None | 1. or 2. above must be defined |

Note) This condition exists because it is possible to not define the Home interface in the ejb-jar that is to be referenced.

EJB local reference names

The EJB local interface is not registered in the naming service, therefore there is no JNDI name. For this reason, the object that will be referenced is determined according to the priority shown below. Note that EJB local references can only be used to reference EJB applications on an identical Java VM process.

1. deployment descriptor file ejb-link that is defined for the EJB local reference name
2. deployment descriptor file interface name that is defined for the EJB local reference name

The definition methods for each are explained below.

deployment descriptor file ejb-link that is defined for the EJB local reference name

When another Enterprise JavaBean is called from the Java EE component, by defining the deployment descriptor file ejb-link when the EJB local reference (ejb-local-ref tag) is defined, it will be possible to specify the Enterprise JavaBean that is to be called. When calling Enterprise JavaBeans that are contained in the same ejb-jar file, specify "ejb-name" of the Enterprise JavaBean. When calling Enterprise JavaBeans that are contained in the same ejb-jar file, specify "ejb-name" of the Enterprise JavaBean that will be called in "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, when calling Enterprise JavaBeans that are contained in different ejb-jars, in the relative path of the ejb-jar file that is called from the caller ejb-jar file, insert a number sign (#) before "ejb-name" for the Enterprise JavaBean that is to be called, as follows:

```
<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>
```

deployment descriptor file interface name that is defined for the EJB local reference name

The LocalHome interface name that is specified in the deployment descriptor file <ejb-local-ref><local-home> tag will be determined as the reference objects shown below, according to the LocalHome interface name that is specified in the <ejb-local-ref><local> tag. The Enterprise JavaBeans that are referenced must be contained in the same ejb-jar file. To call Enterprise JavaBeans that are contained in a different ejb-jar, use the definition method in 1. above.

| LocalHome interface | Local interface | Reference object |
|---------------------|-----------------|---|
| None | Yes | Enterprise JavaBeans that has the specified Local interface (Note) |
| Yes | Yes | Enterprise JavaBeans that has the specified LocalHome interface |
| Yes | None | Enterprise JavaBeans that has the specified LocalHome interface |
| None | None | 1. above must be defined |

Note) This condition exists because it is possible to not define the LocalHome interface in the ejb-jar that is to be referenced.

Persistence unit reference names

The objects of the JNDI name specified in the persistence-unit-name tag that is defined in the deployment descriptor file are looked up. If the persistence-unit-name tag is omitted, the default persistence unit is looked up and the Entity Manager Factory is returned.

```
<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 names

The objects of the JNDI name specified in the persistence-unit-name tag that is defined in the deployment descriptor file are looked up. If the persistence-unit-name tag is omitted, the default persistence unit is looked up and the Entity Manager is returned.

```
<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 names

The JNDI name is determined according to the priority shown below. If the following are not defined, an error will occur.

1. [Interstage deployment descriptor file JNDI name that is defined for the resource reference name](#)
2. [deployment descriptor file mapped-name value that is defined for the resource reference name](#)

The definition methods for each are explained below.

Interstage deployment descriptor file JNDI name that is defined for the resource reference name

When the resource reference name and JNDI name are defined in the Interstage deployment descriptor, the resource reference name will be mapped to the JNDI name that was defined. To map the reference name (jdbc/symfo) to 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>
```

deployment descriptor file mapped-name value that is defined for the resource reference name

When the mapped-name tag is specified in the deployment descriptor file resource reference (resource-ref tag), the objects of the specified JNDI name can be obtained using the lookup method.

```
<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 content defined in the resource-ref tag res-type tag is "java.net.URL", define the jndi-name tag value that will be mapped to the Interstage deployment descriptor file reference name or the URL that will be used in the deployment descriptor file mapped-name tag. The java.net.URL objects that are generated based on the URL in this definition can be obtained using the lookup method. Specify the URL as follows:

```
<resource-ref>
  <res-ref-name>url/MyURL</res-ref-name>
  <jndi-name>http://www.fujitsu.com/</jndi-name>
</resource-ref>
```

Destination reference names

The JNDI name is determined according to the priority shown below.

1. Interstage deployment descriptor file JNDI name that is defined for the Destination link
2. deployment descriptor file mapped-name value that is defined for the Destination link
3. Interstage deployment descriptor file JNDI name that is defined for the Destination reference name
4. deployment descriptor file mapped-name value that is defined for the Destination reference name

The definition methods for each are explained below.

Interstage deployment descriptor file JNDI name that is 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 shown below. The value that is specified in this tag is called the Destination link.

```
<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>
```

When this Destination link is defined, the Destination of the JNDI name that was defined in the Interstage deployment descriptor for the link destination message-destination-name can be obtained using the lookup method.

```
<message-destination>
  <message-destination-name>myDestination</message-destination-name>
  <jndi-name>myQueue</jndi-name>
</message-destination>
```

deployment descriptor file mapped-name value that is defined for the Destination link

When the deployment descriptor file Destination link is defined, the Destination of the JNDI name that was specified can be obtained using the lookup method when the mapped-name tag is specified for message-destination-name of the link destination.

```
<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>
```

Interstage deployment descriptor file JNDI name that is defined for the Destination reference name

If the Destination link is not defined, the Destination of the JNDI name in the Interstage deployment descriptor file that was defined 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>
```

deployment descriptor file mapped-name value that is defined for the Destination reference name

If the deployment descriptor file Destination link is not defined, the Destination of the JNDI name that was specified can be obtained using the lookup method when the Destination reference (message-destination-ref tag) mapped-name tag is specified.

```
<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 names

The JNDI name is determined according to the priority shown below.

1. [Interstage deployment descriptor file JNDI name that is defined for the resource environment reference name](#)
2. [deployment descriptor file mapped-name value that is defined for the resource environment reference name](#)

The definition methods for each are explained below.

Interstage deployment descriptor file JNDI name that is defined for the resource environment reference name

When the resource environment reference name and JNDI name are defined in the Interstage deployment descriptor file, the resource environment reference name will be mapped to the JNDI name that was defined. To map the reference name (eis/myAO) to 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>
```

deployment descriptor file mapped-name value that is defined for the resource environment reference name

When the mapped-name tag is specified in the deployment descriptor file resource environment reference (resource-env-ref tag), the objects of the specified JNDI name can be obtained using the lookup method.

```
<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 | Manages objects in a namespace with the JNDI name. Example) Name specified in the lookup method lookup("jdbc/empDB") | Manages objects in a logical namespace that has the prefix "java:comp/env". Example) Name specified in the lookup method lookup("java:comp/env/jdbc/empDB") |
| Unique name | Manages names in IJServer cluster using unique names. | For EJB components, the object is managed using a unique name for each included Enterprise JavaBean. For other EJB components, the object is managed using a unique name for each component. |

| Item | Naming service | Environment naming context |
|--|---|---|
| Reference object definition | Objects can be referenced by specifying the JNDI name in JNDI API. | To look up objects in JNDI API, the reference name of the object that is to be looked up must be defined in the deployment descriptor file. |
| Context operation | Reference (for example, lookup) and update (for example, bind) are possible. | Only reference (for example, lookup) is possible. |
| Correspondence relationship definition | A correspondence relationship cannot be defined. An error will occur if the resource with the name specified in JNDI API does not exist in the naming service. | A correspondence relationship can be defined between the name that is looked up in the application and the actual JNDI name. |
| 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 - admin 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 - admin object resources - JPA entity manager factory - Container managed JPA EntityManager - Information injected in the annotation - Application environment entry - Enterprise JavaBean used for local calls - URL connection factory - UserTransaction - TransactionSynchronizationRegistry - ORB - HandleDelegate - EJB timer service - EJB context |

2.15 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 that are controlled using JTA are called "JTA Transactions". JTA transactions 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](#)".

Additionally, the target transaction management feature 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 features explained in this chapter cannot be used.

2.15.1 Local Transactions and Global Transactions

JTA transactions consist of local transactions and global transactions. To guarantee the consistency of processing across multiple resources, global transactions must be used. However, performance overheads will occur as a result of the 2-phase commit protocol. It is therefore recommended, where possible, that you use only a single resource and local transactions.

Local transactions

Only one resource is included in local transactions. A local transaction is typically managed internally within a single resource manager.

In local transactions, the 1-phase commit protocol is used. Additionally, for the local transaction, it is a requirement that the transaction is controlled in one process.

Global transactions

In global transactions, multiple resources can be registered in the transaction. For example, a global transaction is used when the work range is two databases. Additionally, when a global transaction is used, transactions can be controlled between multiple processes.

In global transactions, the 2-phase commit protocol is used.

Conditions to Run under Local Transactions

Local transactions must contain only one non-XA resource. All the Java EE components that join in the transaction must be executed in one process. If multiple non-XA resources are used in one transaction range, the transaction will return an error.

Conditions under which JDBC resources will be handled as non-XA resources are as follows:

- When the specified `DataSource` class does not implement the `javax.sql.XADataSource` interface in the JDBC connection pool definition
- When a resource type other than `javax.sql.XADataSource` was specified in the JDBC connection pool definition, or a resource type was 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

To manage transactions that manage multiple resources, or manage transactions in multiple processes, a global transaction will be 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 process is used in the transaction, there will be no need to guarantee consistency, therefore processing will occur using the 1-phase commit protocol. In all other cases, the 2-phase commit protocol will be used.

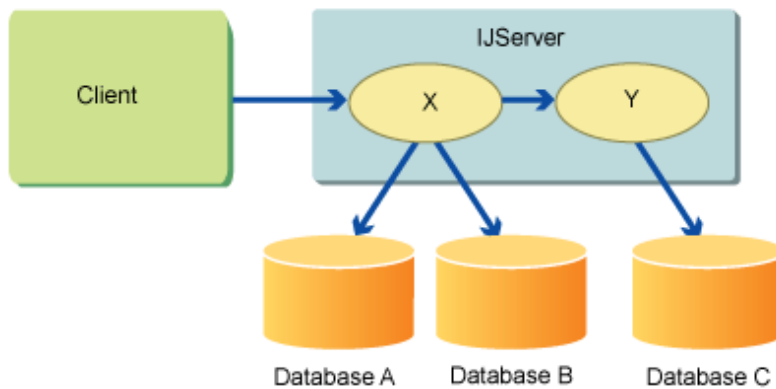
Cases where Global Transaction Control is Required

If the following types of resource access occur within the same transaction range, global transaction control will be required.

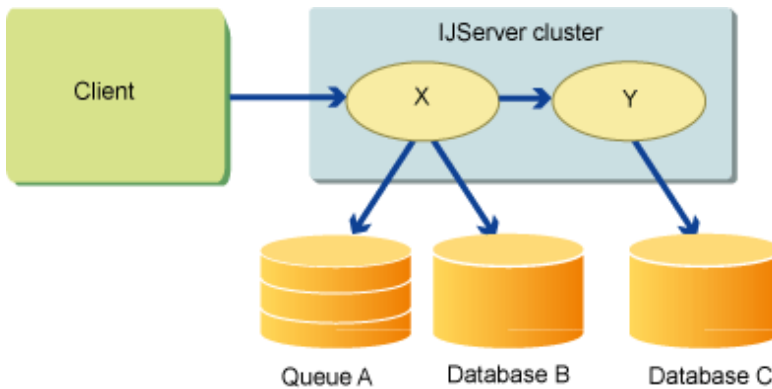
- Case 1: When multiple Resource Managers are accessed
- Case 2: When the Resource Manager is accessed after messages were received
- Case 3: When the Resource Manager is accessed from multiple processes
- Case 4: When the transactions are managed in the client

[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.

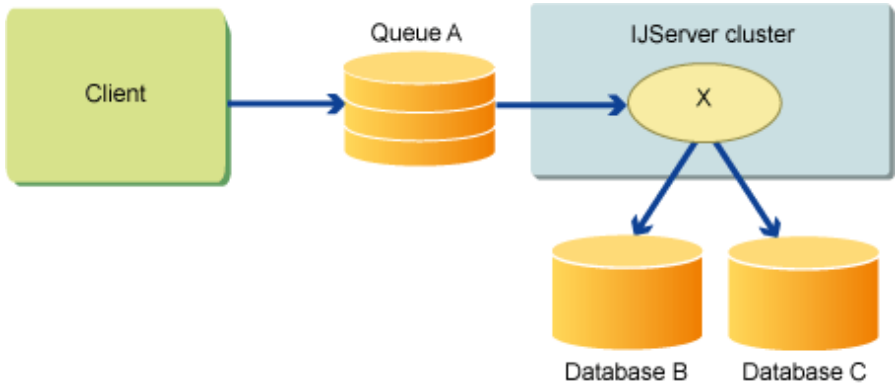


The same applies in the example below, in which the JMS queue (queue A) and databases (database B, database C) are accessed from the X and Y Java EE components in the same transaction.



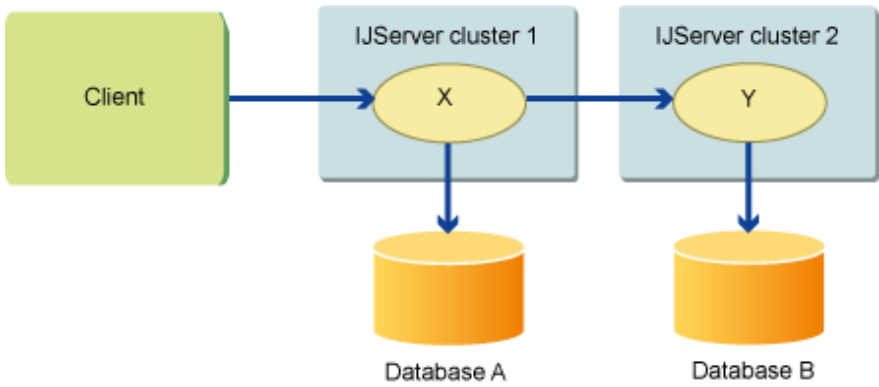
[Case 2] Access to Received Messages and the Resource Manager

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.



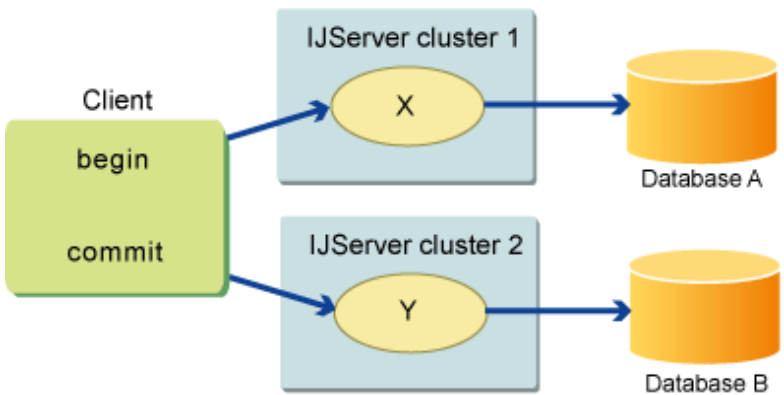
[Case 3] Access to the Resource Manager between Multiple Processes

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

- The transaction processing will require an extremely heavy-load control, therefore the architecture should allow for the transaction processing to occur in the server as much 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.
 - When the Resource Manager is accessed from multiple processes
 - When the transactions are managed in the client

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. There are two methods to control transactions using JTA. These methods are as follows:

- The Java EE component controls transactions using the `javax.transaction.UserTransaction` interface or the `javax.transaction.TransactionSynchronizationRegistry` interface.
- Transaction control is entrusted to the EJB container using container-managed transactions.

To control JTA transactions in web or client applications, use the environment naming context to refer to the transaction manager (`javax.transaction.UserTransaction` or `javax.transaction.TransactionSynchronizationRegistry`). For details, refer to "[2.14.2 Environment Naming Context](#)". For details on how to use the transaction manager, refer to the JTS/JTA terms.

To control JTA transactions in EJB applications, there are two methods: one uses the container, and the other uses the EJB application itself. For details, refer to the EJB terms.

- 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

The 2-phase commit protocol is a mechanism that guarantees the consistency of multiple resources that are registered in a global transaction. The 2-phase commit protocol executes the commit processing in two phases to guarantee the consistency of the resources. The initial phase is called the "preparation phase". The transaction manager checks that the transaction task is ready to commit for each resource manager. The resource manager that can commit the transaction sends a notification to confirm this fact. After checking that all resource managers can commit the transaction, the commit processing is performed for the resource managers. If there are resource managers that cannot commit in the preparation phase, the transaction will be rolled back.

There is no need for the Java EE component that requests the transaction to be aware of the Interstage 2-phase commit mechanism. By the Java EE component performing the same transaction control as when the local transaction is used, the container will perform 2-phase commit processing automatically.

In the 2-phase commit protocol, the transaction manager records the progress of the transaction to guarantee the atomicity of results when a problem occurs in the system. The log that records this progress 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 "[7.7.13 Transaction Service Definition Items](#)". 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

In the 2-phase commit protocol, after confirming that all resource managers can commit the transaction, the commit processing is performed for the resource managers, therefore the atomicity when multiple resources are used is improved. However, after the notification in the preparation phase that all resource managers can commit the transaction, the commit phase may fail for the reasons shown below. In this case, transactions for which the commit phase fails are called **indoubt transactions**.

- The server machine has crashed.
- The network connection with the resource manager was cut.
- An unexpected error occurred in the product that is used.

The indoubt transaction performs recovery processing according to one of the following methods.

Automatic Recovery

Automatic recovery for transactions in an indoubt state is performed automatically when the Interstage Java EE 6 DAS service starts. To enable the recovery processing to be executed automatically, set 'automatic-recovery' to 'true' in the asadmin command set subcommand. This setting will be enabled from the next time the Interstage Java EE 6 DAS service is started. For details on the transaction service definitions, refer to "[7.7.13 Transaction Service Definition Items](#)".

Manual recovery

Recovery processing of indoubt transactions managed by the transaction manager is executed by using the asadmin command "[9.1.13.3 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 the recovery processing is executed, the transaction manager calls the recover method for the registered XA resources and executes commit or rollback processing for the resources that are in an indoubt state.

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

In the 2-phase commit protocol, the transaction manager records the progress of the transaction in the transaction log to guarantee the atomicity of results when a problem occurs in the system. When a system error occurs, the transaction manager can perform recovery processing for the transaction in which the error occurred based on the information in the transaction log.

Business data information may sometimes be stored in the transaction information, therefore the transaction log is encrypted. For this reason, the content details cannot be confirmed just by looking at the content.

The transaction log can be output to any directory. Specify "transaction log location (tx-log-dir)" in the transaction service definition for the transaction log storage directory. For details on the transaction service definition, refer to "[7.7.13 Transaction Service Definition Items](#)".

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 "[7.7.13 Transaction Service Definition Items](#)".

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 sub system in configs.config.monitoring-service is set to HIGH using the asadmin command set subcommand. (LOW is not supported). To disable the transaction monitoring functionality, specify OFF. For details, refer to "[9.1.4.2 set Subcommand](#)".

If the monitoring level is set, the transaction statuses shown below can be checked. For details on how to check the transaction status, refer to "[9.1.4.1 get Subcommand](#)".

Transaction ID

Transaction ID is displayed.

Status

One of the following is displayed as the transaction status.

- Active
- MarkedRollback
- Prepared
- UnKnown
- Preparing
- Committing
- 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**
Execute the "[freeze-transaction-service Subcommand](#)".
2. **Mark Rollback**
Execute the "[rollback-transaction Subcommand](#)".
3. **Unfreeze**
Execute the "[unfreeze-transaction-service Subcommand](#)".

Although freeze and unfreeze are optional, they are recommended to avoid the transaction being closed during the operation. For details on operations using commands, refer to "[9.1 asadmin](#)".

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.

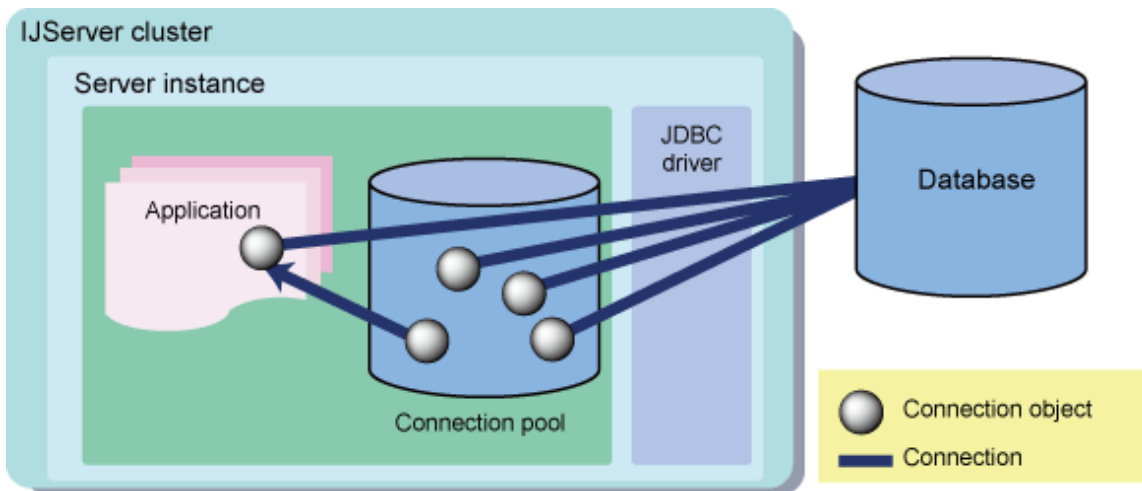
- Connector resources
- JDBC resources
- JMS connection factory

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.

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. **(Note)**

In the example in the figure below, the connection to the database is made using JDBC resources.

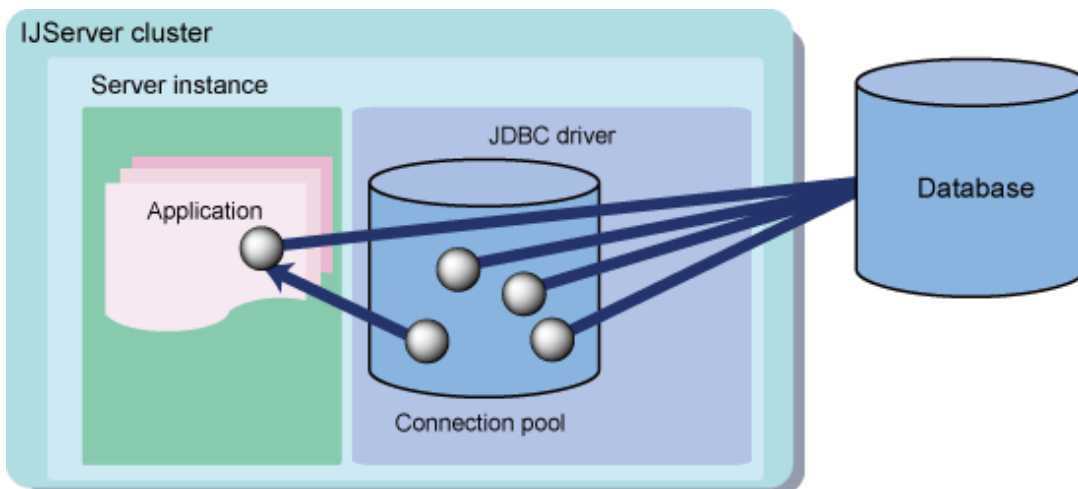


Note) If a connection is obtained during the transaction, it will be returned to the pool once the transaction is complete.

Disabling the JDB Connection Pool

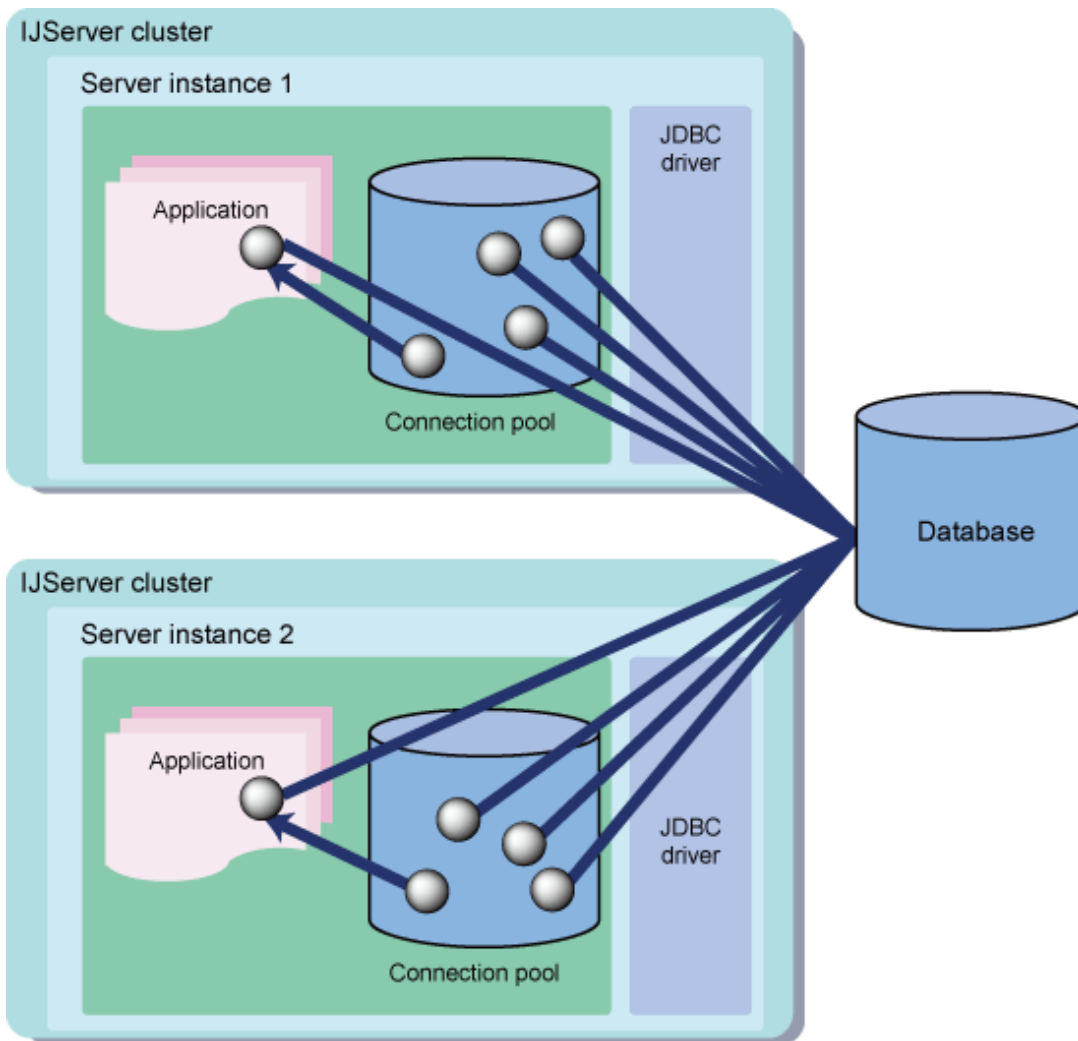
In the JDBC Connection Pool, a feature that pools the connections may be provided in the JDBC driver. For this reason, it is also possible to disable the JDBC Connection Pool in Interstage. In this case, it will not be possible to use some parts of the Connection Pool tuning feature or the monitoring 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. (Note 2)
 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 server instance has stopped

Note 2) In Java EE application client or Java SE standalone applications, the connection pool is created in the client process. This connection pool is created using the definition item value for the connection pool on the server.

2.17 Database Connection/JDBC

The Java EE component uses JDBC API to access the database. The database connection features are explained below.

JDBC Resources

A JDBC resource (data source) provides applications with a means of connecting to a database. JDBC resources are defined for each database accessed by the application.

To create a JDBC resource, specify a unique JNDI name that identifies the resource. The application will obtain the JDBC resource using JNDI API. The application can execute processing requests to the database using 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. For details on how to tune, refer to "[6.8 Tuning the Database Linkage Environment](#)".
 - 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, and then makes a request to the database for processing.
4. After the database processing is complete, the connection is released. Interstage returns the connection that was released 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.

For details on how to create the application that is to connect to the database, refer to "[3.1.7 Creating Applications that Connect to the Database](#)".

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 "[6.8 Tuning the Database Linkage Environment](#)".

Parameters for the Time Monitoring Functionality

- Maximum wait time

- Idle timeout
- Statement timeout
- Leak 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 it 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 the consumer, instead of having to receive all messages sent by the producer. As a result, operability improves.



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 destinations"). 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 one 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 JMS connection factory and JMS send destination resources that are obtained by the JMS client via JNDI using the asadmin command.

For details on how to create the JMS connection factory/JMS send destination resources, refer to "[4.15.5 Preparation for Sending/Receiving JMS Messages](#)".

JMS Connection Factory (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.

JMS Send Destination Resources (Destination)

This defines the address information that identifies the physical storage destination.

The JMS client application obtains JMS connection factory and JMS send destination resources that were defined via JNDI and sends/receives messages after the connection with the message broker is made.

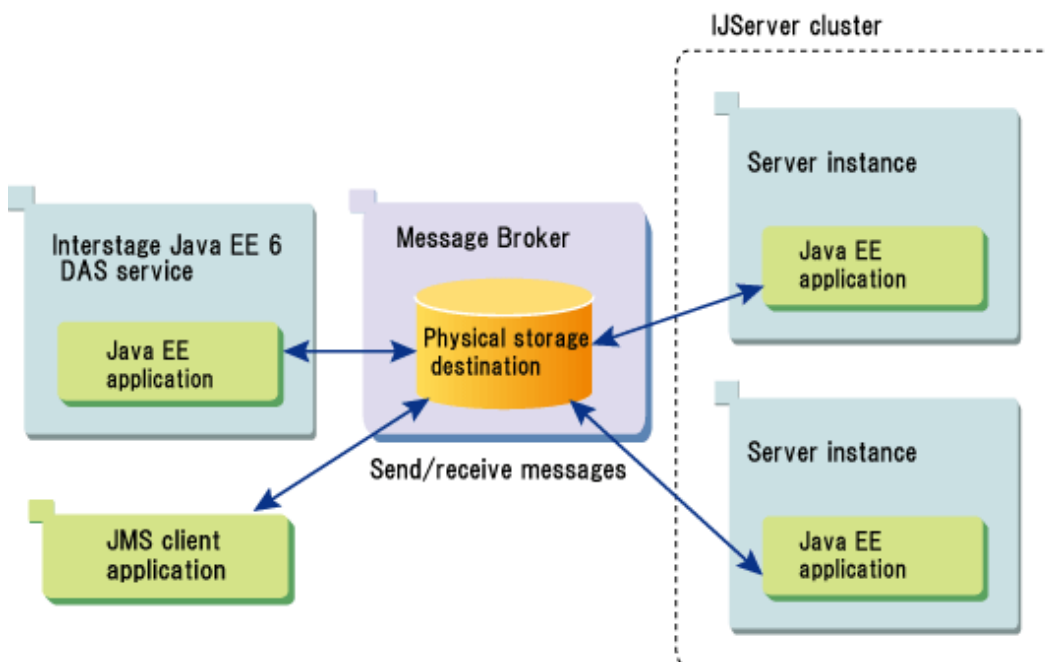
Message Broker Operation Mode

REMOTE mode

This is the default mode used when the message broker runs on a separate process to the Interstage Java EE 6 DAS service and server instance and JMS is used on the Interstage Java EE 6 DAS service/IJServer cluster.

Using this mode, Java EE applications that run on the Interstage Java EE 6 DAS service and server instance, and JMS client applications that run on other processes, exchange (send and receive) messages with the message broker.

Additionally, the message broker can be started automatically by creating it as a service. For details on starting/stopping the message broker, refer to "[4.15.3 Message Broker Operations in REMOTE mode](#)".

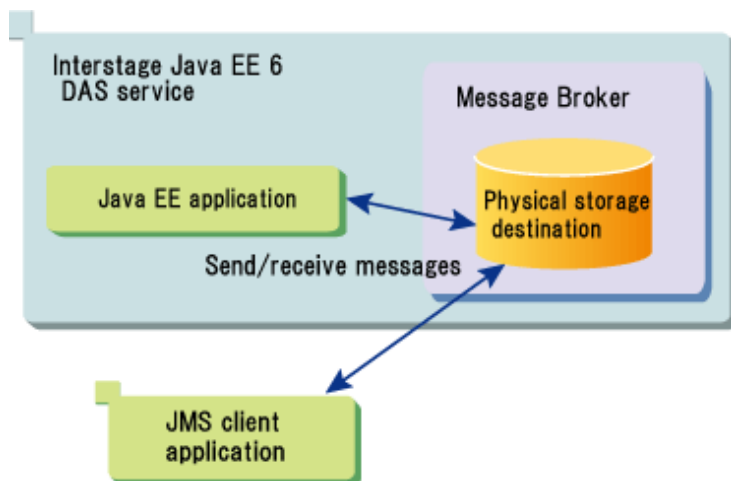


EMBEDDED mode

This mode can only be used when the message broker runs on the same process as the Interstage Java EE 6 DAS service and JMS is used in the Interstage Java EE 6 DAS service.

Using this mode, Java EE applications that run on the Interstage Java EE 6 DAS service, and JMS client applications that run on other processes, exchange (send and receive) messages with the message broker.

Additionally, the start and stop of the message broker is linked with the start and stop of the Interstage Java EE 6 DAS service. For details on starting/stopping the message broker, refer to "[4.15.4 Message Broker Operations in EMBEDDED mode](#)".



Note

The message broker EMBEDDED mode has the following characteristics, therefore it should not be used in actual business operations:

- The behavior is guaranteed only in the Interstage Java EE 6 DAS service.
- To stop the message broker running in this mode, the Interstage Java EE 6 DAS service must be stopped.
- Communication from Java EE applications running in the IJServer cluster to the message brokers running in this mode is not supported.
- Operations are not possible if the following definition items are changed from their default value:
 - Connection service properties
 - Routing service properties
 - Physical storage destination automatic generation properties
 - Persistence service properties
 - Security properties
 - Log function properties

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 application.

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'. Additionally, when the point-to-point messaging model is used, the physical storage destination type will be 'Queue'.

The functions shown below are provided.

Accumulated message constraint

The following can be constrained:

- Maximum size of a single message that can be accumulated by the physical storage destination

The maximum size of a single message is set in the `maxBytesPerMsg` property (the default is unlimited).

If the message size exceeds the upper limit, the message cannot be sent.

- Total maximum size of messages, and maximum number of messages, that can be accumulated by the physical storage destination

The total maximum size of messages is set in the `maxTotalMsgBytes` property (the default is unlimited).

The maximum number of messages is set in the `maxNumMsgs` property (the default is unlimited).

The behavior when the message is sent when one of the upper limits is exceeded can be controlled using the `limitBehavior` property.

Any of the following behaviors can be selected:

- The newest message to be sent is rejected. (Default)
- The oldest message accumulated in the physical storage destination is discarded before the message is sent.
- The message with the lowest priority accumulated in the physical storage destination is discarded before the message is sent.
- Wait for message send processing until sending becomes possible.

Constraining the number of connected JMS clients

The following can be constrained:

- Number of producers that can be sent to the physical storage destination

The number of producers that can be sent is set in the `maxNumProducers` property (the default is 100).

If the number of producers exceeds the upper limit, additional producers cannot be created.

- Number of consumers that can be received by Queue type physical storage destinations

The number of consumers that can be received is set in the `maxNumActiveConsumers` property (the default is unlimited).

If the upper limit is exceeded and the consumer is created, a waiting state for receiving consumers will ensue. If a consumer is disconnected while being received, the waiting state will be cleared so that the consumer can be received.

The number of consumers that can be waiting to receive is set in the `maxNumBackupConsumers` property (the default is 0).

If the number of consumers exceeds the upper limit, additional consumers cannot be created.



See

For details on the properties, refer to "7.6.3 Physical Storage Destination Automatic Generation Properties" and "7.6.7 Physical Storage Destination Generation or Update Properties".

The following management is possible in the physical storage destination:

- [Creating 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. The items that can be set and the method of setting these items are explained below.

Creating the Physical Storage Destination

The physical storage destination can be created using the methods shown below.

Using the imqcmd command

The physical storage destination can be created using the imqcmd command create dst subcommand. For details, refer to "9.6.1 create dst Subcommand" in "imqcmd" in the "Chapter 9 Java EE 6 Operation Commands" chapter.



Example

Creating a physical storage destination whose name is 'JMSQueue' and type is 'Queue' for the message broker that runs on the local host

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd create dst -n JMSQueue -t q
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd create dst -n JMSQueue -t q
```

To create the physical storage destination by changing the default setting, specify the physical storage destination generation property in the -o option of the create dst subcommand. For details on physical storage destination generation properties, refer to "7.6.7 Physical Storage Destination Generation or Update Properties".



Example

Example: Changing the maximum number of messages to that have accumulated in the physical storage destination to "100"

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd create dst -n JMSQueue -t q -o maxNumMsgs=100
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd create dst -n JMSQueue -t q -o maxNumMsgs=100
```

Using TemporaryQueue and TemporaryTopic

If `createTemporaryQueue` and `createTemporaryTopic` of the `Session` class are used, the message broker will create the physical storage destination as a temporary physical storage destination.

A temporary physical storage destination can only be used while connected to the JMS client application that created the temporary physical storage destination.

Additionally, the default values in [7.6.7 Physical Storage Destination Generation or Update Properties](#) are set as the temporary physical storage destination properties.

Note

To delete the temporary physical storage destination, use `delete` of the `TemporaryQueue` class and `TemporaryTopic` class.

Using the message broker automatic generation function

When the message broker accesses a physical storage destination in which no producer or consumer exists, a new physical storage destination will be created automatically.

The settings related to the automatic generation of the physical storage destination are configured using the `-D` option of the `imqbrokerd` command.

For details on this command, refer to ["9.5 imqbrokerd"](#). Additionally, for details on the physical storage destination automatic generation properties, refer to ["7.6.3 Physical Storage Destination Automatic Generation Properties"](#).

Note

- This function may send/receive messages to/from an unintended physical storage destination by mistake because of a definition error. For this reason, for this operation, set "false" as the physical storage destination automatic generation property to suppress the automatic generation of the physical storage destination.
- The automatically generated physical storage destination will be deleted automatically when there are no more accesses in a state where no accumulated messages exist.
- The name of the physical storage destination that is generated automatically will be determined by one of the following:
 - Physical storage destination name specified in the JMS send destination resource Name property
For details, refer to ["9.1.14.8 create-jms-resource Subcommand"](#).
 - Physical storage destination name specified in `createQueue` and `createTopic` of the `Session` class

By specifying the two properties in the following example in the `imqbrokerd` command to start the message broker, the automatic generation of the physical storage destination types `Queue` and `Topic` will be suppressed.

Example

Example of suppressing the automatic generation of the physical storage destination

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqbrokerd -port 37676 -name brokertest -  
Dimq.autocreate.queue=false -Dimq.autocreate.topic=false
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqbrokerd -port 37676 -name brokertest -Dimq.autocreate.queue=false -  
Dimq.autocreate.topic=false
```

Displaying the List of Physical Storage Destinations

The list of physical storage destinations can be displayed using the `imqcmd` command `list dst` subcommand. For details, refer to "[9.6.6 list dst Subcommand](#)" in "`imqcmd`" in the "[Chapter 9 Java EE 6 Operation Commands](#)" chapter.

Example

Displaying the list of physical storage destinations for the message broker

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd list dst
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd list dst
```

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. For details, refer to "[9.6.15 query dst Subcommand](#)".

Example

Example: Displaying properties information for the "JMSQueue" physical storage destination

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd query dst -b localhost:37676 -t q -n JMSQueue
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/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 this subcommand, refer to "[9.6.21 update dst Subcommand](#)". Additionally, for details on the physical storage destination update properties, refer to "[7.6.7 Physical Storage Destination Generation or Update Properties](#)".

Example

Example: Changing the "maxNumMsgs" and "maxBytesPerMsg" properties for the "JMSQueue" physical storage destination

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd update dst -b localhost:37676 -t q -n JMSQueue -o maxNumMsgs=100 -o maxBytesPerMsg=100
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/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. For details, refer to "[9.6.10 pause dst Subcommand](#)".

Example

Example: Stopping delivery of messages from the "JMSQueue" physical storage destination to the Consumer

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd pause dst -b localhost:37676 -t q -n JMSQueue -pst CONSUMERS
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/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. For details, refer to "[9.6.19 resume dst Subcommand](#)".

Example

Example: Restarting delivery of messages from the "JMSQueue" physical storage destination to the Consumer

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd resume dst -b localhost:37676 -t q -n JMSQueue
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/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. For details, refer to "[9.6.11 purge dst Subcommand](#)" in "imqcmd" in the "[Chapter 9 Java EE 6 Operation Commands](#)" chapter.

Example

Purging all messages that are stored in the "JMSQueue" physical storage destination

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd purge dst -t q -n JMSQueue
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd purge dst -t q -n JMSQueue
```

Destroying a Physical Storage Destination

A physical storage destination can be destroyed using the `imqcmd` command `destroy dst` subcommand. For details, refer to the "[9.6.3 destroy dst Subcommand](#)" in "imqcmd" in the "[Chapter 9 Java EE 6 Operation Commands](#)" chapter.

Example

Destroying physical storage destination "JMSQueue"

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd destroy dst -t q -n JMSQueue
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd destroy dst -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 connection services:

admin connection service

This manages the message brokers.

When the message broker uses REMOTE mode

When the Interstage Java EE 6 DAS service runs the message broker in EMBEDDED mode

Requests from the following are received via TCP communication:

- The imqcmd command that is provided in JMS

jms connection service

This processes the delivery of JMS messages.

When the message broker uses REMOTE mode

Message send/receive requests from the following are received via TCP communication:

- The following applications that run in Interstage Java EE 6 DAS services/IJServer clusters:
 - Web application
 - EJB application
- The following applications that run as client applications:
 - Java EE application client container
 - Java SE standalone application

When the Interstage Java EE 6 DAS service runs the message broker in EMBEDDED mode

Message send/receive requests from the following are received via TCP communication:

- The following applications that run as client applications:
 - Java EE application client container
 - Java SE standalone application

jmsdirect connection service

This processes the delivery of JMS messages.

When the message broker uses REMOTE mode

This connection service cannot be used.

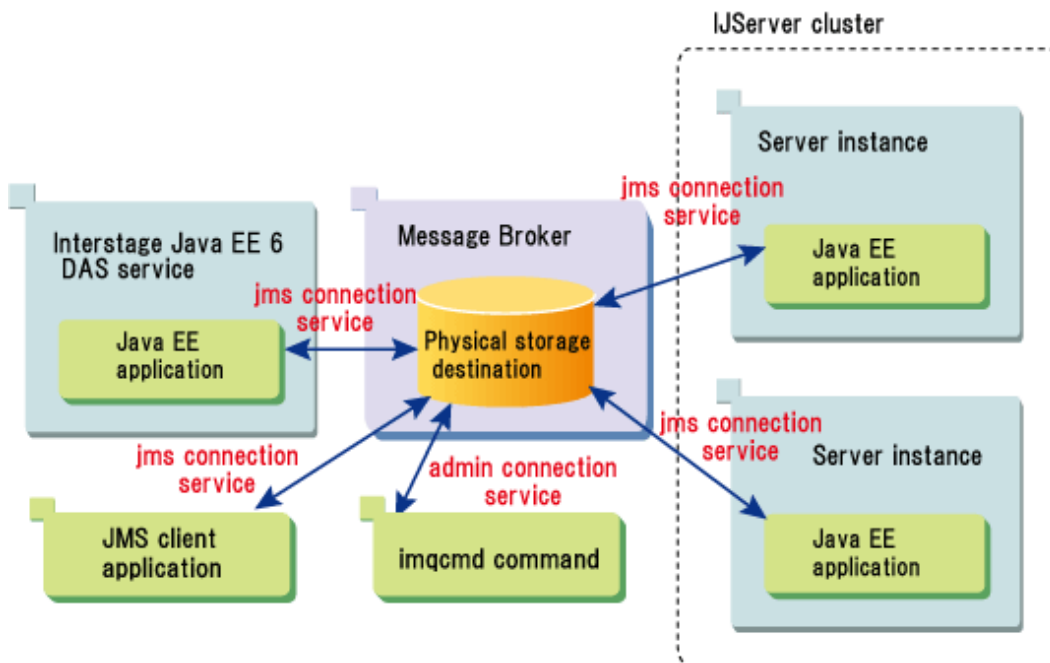
When the Interstage Java EE 6 DAS service runs the message broker in EMBEDDED mode

Message send/receive requests from the following are received without using TCP communication:

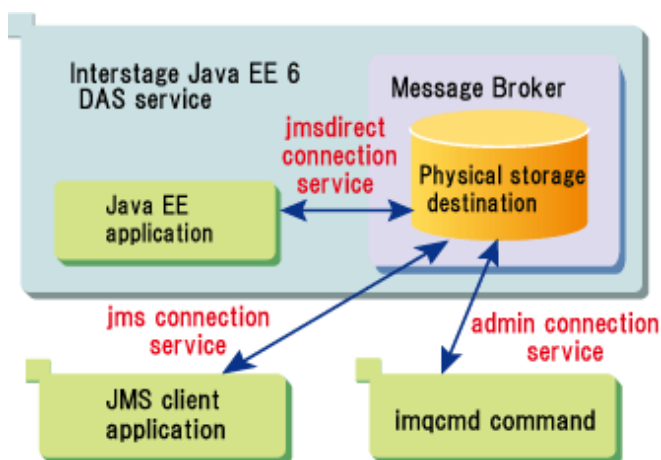
- The following applications that run in Interstage Java EE 6 DAS services:
 - Web application
 - EJB application

The figures below show each connection service for the respective message broker modes.

When the message broker uses REMOTE mode



When the Interstage Java EE 6 DAS service runs the message broker in EMBEDDED mode



Thread Pool Management

The admin connection service and jms connection service receive message send/receive requests via TCP communication. For this reason, the requests are processed using multithreads in a thread pool. The threads required for these connections are managed by the message broker using individual thread pools, which are provided for each connection service.

The jmsdirect connection service receives requests directly from the Interstage Java EE 6 DAS service without using TCP communication, therefore it does not use a thread pool.

Threading models

The model for the threads managed in the thread pool is the dedicated model.

dedicated model

Two threads (for receipt and for delivery) are created per connection to the message broker.

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.



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.

For details on thread pool properties, refer to "[7.6.1 Connection Service Properties](#)".

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.



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 "[7.6.1 Connection Service Properties](#)".

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`)
- Maximum size of each message (`imq.message.max_size`)



Point

Messages can also be constrained per physical storage destination, not just for the entire system.

For details on message constraint for the physical storage destination, refer to "[2.19.3 Physical Storage Destination Management](#)".



See

For details on the properties that are related to the routing service, refer to "[7.6.2 Routing Service Properties](#)".

2.19.7 Persistence Service

The persistence service prevents the loss of messages because of problems such as system failure, application abnormality, or network abnormality by storing messages and Durable Subscription information in a data store (file).

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.

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).



See

For details on the properties that are related to the data store, refer to "[7.6.4 Persistence Service Properties](#)".

Additionally, for details on data store initialization and starting the message broker, refer to "[9.5 imqbrokerd](#)".

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

A message that was discarded from the system for the following reasons is called a "dead message".

- Messages for which the validity was detected as having expired by the message broker
- Messages discarded from the physical storage destination because the upper limit for messages that can be retained has been exceeded
- Messages for which processing to deliver the same message to the message-driven bean application has failed twice in succession

The message broker detects that the message has expired in the following ways:

- Using the interval set in the `imq.message.expiration.interval` property (Default: 60 seconds).
- When the message is predelivered to the consumer.
- When the message that was predelivered to the consumer is received from a temporary storage area.

For details on the `imq.message.expiration.interval` property, refer to "[7.6.2 Routing Service Properties](#)".

When the message broker starts, 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 messages 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 "[7.6.7 Physical Storage Destination Generation or Update Properties](#)".



Example

Example: Executing the update command so that the message backup function following an abnormality is not used

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd update dst -b localhost:37676 -n JMSQueue -t q -o useDMQ=false
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/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 is the following difference:

- Dead message queues 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 |
|----------------------------|---|----------------------------------|--|
| <code>limitBehavior</code> | <code>FLOW_CONTROL</code> is not supported. | <code>REMOVE_OLDEST</code> | <code>REJECT_NEWEST</code> |

| Property | Difference with the normal physical storage destination | Dead message queue default value | Other physical storage destination default value |
|------------------|---|----------------------------------|--|
| maxNumMsgs | - | 1000 | -1(unlimited) |
| maxNumProducers | This cannot be changed. | 0 | 100 |
| maxTotalMsgBytes | - | 10m | -1(unlimited) |
| useDMQ | true Interstage is not supported. | false | true |

For details on the properties, refer to "[7.6.7 Physical Storage Destination Generation or Update Properties](#)".

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 "[7.6.2 Routing Service Properties](#)".



Example

Example: Setting that the message body is destroyed and the message saved in the dead message queue

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqbrokerd -Dimq.destination.DMQ.truncateBody=true
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqbrokerd -Dimq.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 "[7.6.6 Log Function Properties](#)".



Example

Example: Executing the command that enables dead message logging

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqbrokerd -Dimq.destination.logDeadMsgs=true
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqbrokerd -Dimq.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 messages queue in a JMS client application, obtain the dead message queue using the createQueue method of the Session class.



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 "9.6.11 purge dst Subcommand" in "imqcmd" in the "Chapter 9 Java EE 6 Operation Commands" chapter.



Example

Example of executing the command that purges messages from the dead message queue

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd purge dst -t q -n mq.sys.dmq
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd purge dst -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.



Note

When the jms connection service is used to send/receive JMS messages, the predelivery function is used for this purpose.

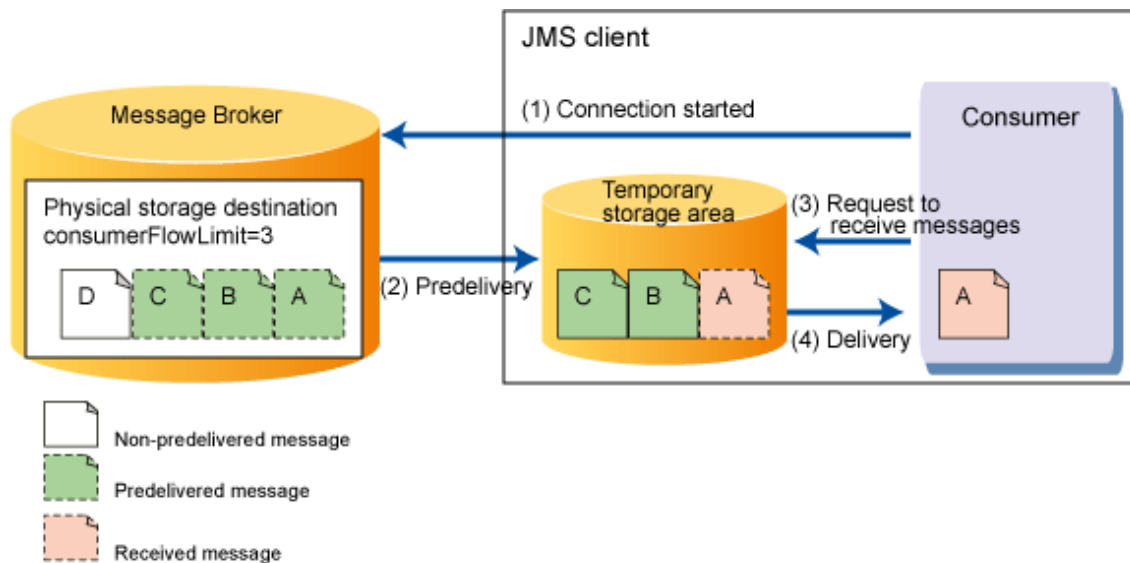
If the message broker runs in EMBEDDED mode and JMS is used in the web or EJB application, the JMS messages will be sent/received using the jmsdirect connection service but without using TCP communication, therefore the predelivery function is not enabled by default.

The predelivery processing is explained below.

- [Single Consumer Predelivery Processing](#)
- [Multiple Consumer Predelivery Processing \(with Accumulated Messages\)](#)
- [Multiple Consumer Predelivery Processing \(without Accumulated Messages\)](#)

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 `consumerFlowLimit` upper limit set in the physical storage destination is used as the basis for messages that can be delivered to the consumer, and these messages are then predelivered.

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

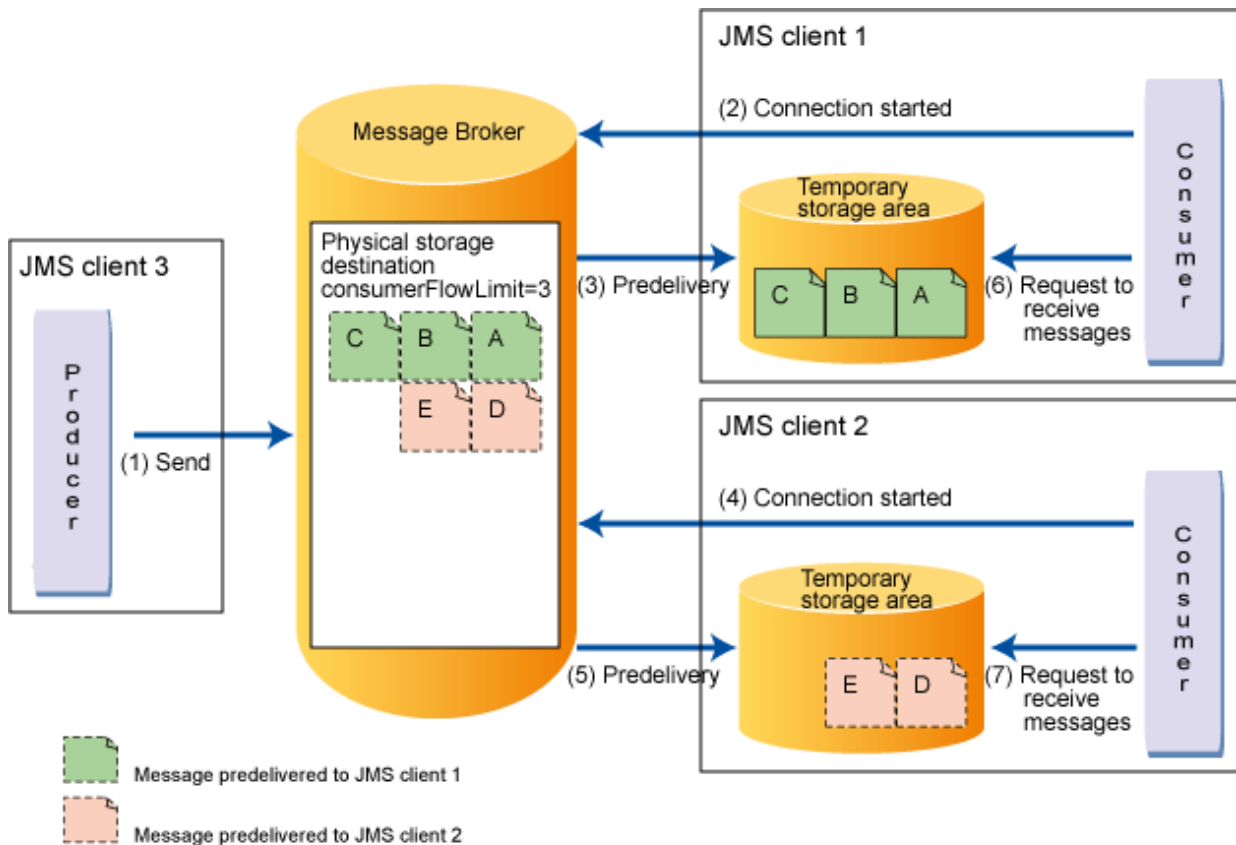
The consumer receives the message (A).

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 pre-delivery to the message broker.

(3) The messages are pre-delivered to JMS client 1

The consumerFlowLimit upper limit set in the physical storage destination is used as the basis for messages that can be delivered to the consumer, and these messages are then pre-delivered.

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 pre-delivery to the message broker.

(5) The messages are pre-delivered to JMS client 2

The consumerFlowLimit upper limit set in the physical storage destination is used as the basis for messages that can be delivered to the consumer, and these messages are then pre-delivered.

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 pre-delivered 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.

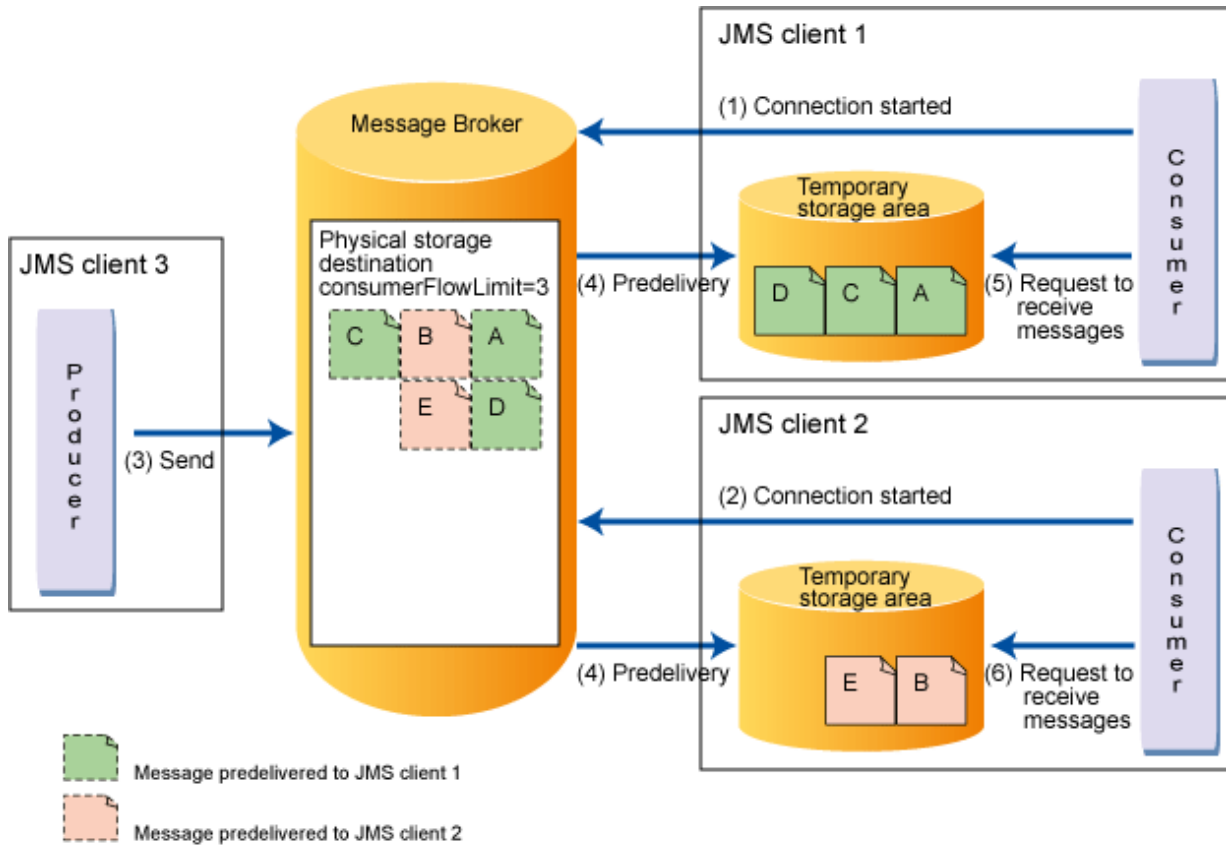
Messages (A, B, and C) have already been pre-delivered to JMS client 1, therefore they cannot be received.

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 pre-delivered to JMS clients 1 and 2

The message broker dispatches the messages that have accumulated in the physical storage destination randomly, using the consumerFlowLimit upper limit set in the physical storage destination as the basis for this dispatch.

If the scenario in the above figure applies, the following steps are executed:

1. Three messages (A, C, and D) are pre-delivered to JMS client 1.
2. Two messages (B and E) are pre-delivered 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 pre-delivered 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 non-Java EE Connector Architecture terms functionality that is provided in the connector service of this product. Depending on the resource adapter type, there will be outbound/inbound-specific functionality, and functionality that is common to both.

- Outbound/resource adapter functionality
 - [Definition of the Connector Connection Pool and Connector Resources](#)
 - [Outbound/resource Adapter Transaction Control](#)
 - Security management
Refer to "[5.7 Authentication Information at the time of Resource Access](#)".
- 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](#)

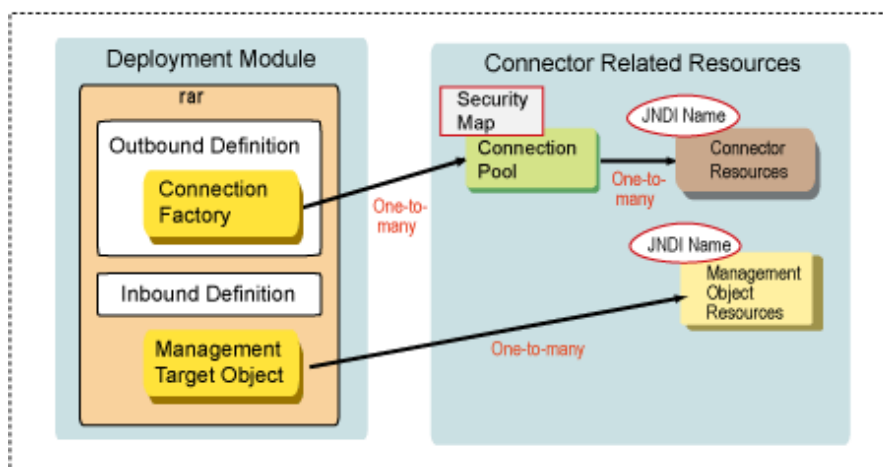
In the connector service of this product, the time monitoring function is supported together with the above functions. For details, refer to "[2.21 Time Monitoring Functionality that can be Used in the Connector](#)".

2.20.1 Definition of the Connector Connection Pool and Connector Resources

This section explains the Connector Connection Pool and the connector resources.

The relationship between the Connector Connection Pool, connector resources, and admin object resources is shown below. The red line indicates multiple Connector Connection Pool and connector resource definitions. For details on the admin object resources, refer to "[2.20.4 Definition of Managed Object Resources](#)".

Interstage Java EE 6 DAS service



Connector Connection Pool

The connection pool manages connections established with EIS and improves performance by returning the connections in the pool when the request is received from 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.

In an application that conforms to the connector terms, `ConnectionFactory` can be defined multiple times for one resource adapter. In the connector service of this product, multiple connection pool settings can be defined for a single `ConnectionFactory`. The resource that defines the connection pool is called "**Connector Connection Pool**".

For details on the connector connection pool tuning information, refer to "[6.9 Connector Tuning](#)".

When the outbound resource adapter is used, it will be necessary to register the Connector Connection Pool after the connector module has been deployed.

Connector Resources

Set the JNDI name that looks up `ConnectionFactory` using JNDI for each Connector Connection Pool. It is also possible to define multiple JNDI names for one Connector Connection Pool. The resource that defines the JNDI name in the Connector Connection Pool is called "**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 6 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 works with applications asynchronously and makes requests for processing to them if required. The resource adapter receives the processing request from EIS, calls the message-driven bean when required, and then delivers the processing request to the application server. The messages that were delivered will be managed by the EJB container according to the various message-driven bean definitions.

The inbound resource adapter receiver application uses the message-driven bean. Specify which resource adapter the messages will be received from in the resource adapter name. If the resource adapter name is not specified, or an empty string or "jmsra" is specified, JMS will be selected as the target for receiving message-driven bean messages. For details on the resource adapter names, refer to "4.16.1 Deploying the Connector Module and Creation of Resource Definitions". For details on the message-driven bean, refer to "2.9.2 Message-driven Bean Runtime Environment".

2.20.4 Definition of Managed Object Resources

In the resource adapter that conforms to the Java EE Connector Architecture (JCA) terms, the 'administered object', which manages resource adapter-specific information, can be defined and used in the application. The application obtains the administered object through JNDI lookup and executes the process. One connector module can contain multiple administered objects, and a JNDI name that is unique in the system is assigned per administered object interface. The administered object resource that assigns the JNDI name is called '**Admin Object Resource**'.

2.20.5 JavaBean Configurations

In the resource adapter that conforms to the Java EE Connector Architecture terms, the JavaBean instance is generated and used in processing according to the resource adapter type. When the JavaBean is generated, the config property value that was specified in the deployment descriptor (or annotation) or asadmin command will be set. JavaBean types are resource adapter, ManagedConnectionFactory, ActivationSpec, and administered object. The configuration is executed in the three steps shown below.

1. Generate the JavaBean instance
2. Sum of the type A and B config properties (Note 1)
 - Type A: deployment descriptor (ra.xml, ejb-jar.xml (Note 2))/annotation (Note 2) config property
 - Type B: config property specified from the asadmin command/glassfish-ejb-jar.xml(Note 2)
3. After 2. has been executed, call the JavaBean setter using the config property

Note 1) Add the type B property to the type A property. When there is a common property name, however, overwrite type A with the type B property value.

Note 2) This only applies to ActivationSpec JavaBean. For details on glassfish-ejbjar.xml, refer to "3.2.1.3 Interstage EJB application deployment descriptor (glassfish-ejb-jar.xml)".

The properties that are used in each JavaBean are shown below.

| JavaBean type | Type A | Type B |
|--------------------------|---|--|
| Resource adapter | ra.xml <connector><resourceadapter><config-property> | None |
| ManagedConnectionFactory | ra.xml <connector><resourceadapter><outbound-resourceadapter><connection-definition><config-property> | - asadmin command create-connector-connection-pools subcommand --property option - Connector connection pool definitions additional property |
| ActivationSpec | - ejb-jar.xml <ejb-jar><enterprise-beans><message-driven><activation-config><activation-config-property> - javax.ejb.ActivationConfigProperty(javax.ejb.MessageDriven annotation activationConfig attribute value) | glassfish-ejb-jar.xml: <glassfish-ejb-jar><enterprise-beans><ejb><mdb-resource-adapter><activation-config><activation-config-property> |
| Managed object | ra.xml <connector><resourceadapter><adminobject><config-property> | - asadmin command create-admin-object subcommand --property option |

| JavaBean type | Type A | Type B |
|---------------|--------|--|
| | | - Managed object resource definitions additional property |

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 "[6.5.1 Thread Pooling](#)".

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 "[6.9 Connector Tuning](#)".

Time monitoring function parameters

- Maximum wait time
- Idle timeout
- Shutdown timeout

2.22 Class Loader

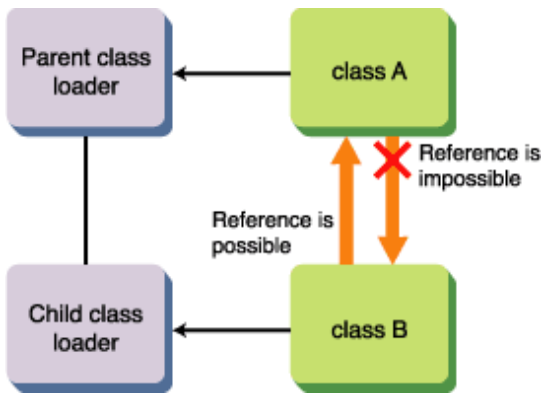
The Java class loader searches the class file and provides the functionality to load the class to memory.

When creating the Java EE application, identify which class loader the class is loaded on and then configure the Java EE application.

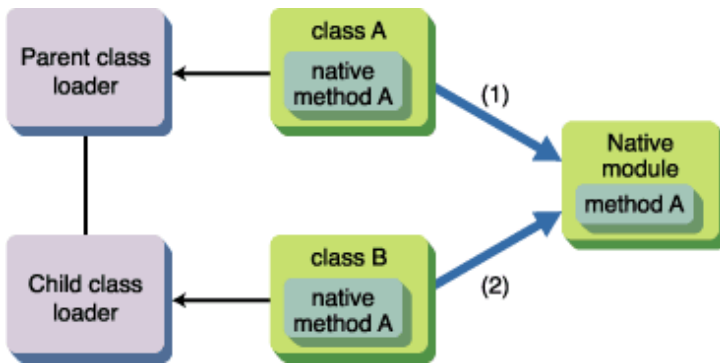
Structure of the Class Loader

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.

2.22.1 Class Loader Configuration

This section explains the Interstage Java EE 6 class loader hierarchical structure.

The class loaders that are used in Interstage Java EE 6 have the parent class loader and child class loader hierarchical structure. In this way, because the class loader has a hierarchical structure, independence in systems and applications, and between applications, is improved. Each class loader loads the resources shown in the table below. In the default settings in this product, the resources are searched in descending order (as per the table). In the web class loader, it is possible to change the resource lookup order by changing the delegation model. For details, refer to "[2.22.3 Changing the Delegation Model of the Web Class Loader](#)". The lookup order for resources loaded on each class loader is undefined.

| Class loader | Resources to be loaded | Settings method |
|-------------------------|--|---|
| Extension class loader | Classes deployed to the system extension directory | System extension directory For details, refer to " 2.22.4 Settings for classes used in Interstage Java EE 6 ". |
| Public API class loader | Application server classes | Not possible |

| Class loader | Resources to be loaded | Settings method |
|-------------------------------|---|---|
| Common class loader | All common classes in the Interstage Java EE 6 DAS service | Common directory For details, refer to " 2.22.4 Settings for classes used in Interstage Java EE 6 ". |
| Connector class loader | Connector module classes | RAR file |
| Lifecycle module class loader | Lifecycle module | Lifecycle module For details, refer to " 2.24 Lifecycle Module ". |
| Applib class loader | Application library classes (JAR file) | Application library For details, refer to " 2.22.4 Settings for classes used in Interstage Java EE 6 ". |
| Application class loader | Common classes that are used in the enterprise application (JAR file) | Directory specified in the application.xml library-directory tag This is the EAR file lib directory, if the library-directory tag is omitted |
| | Connector module classes in the enterprise application | RAR file in the EAR file |
| | EJB application classes, or classes used by that EJB application, in the enterprise application (this also includes when the EJB application is deployed as a standalone application) | Class path of the EJB-JAR file, or of the manifest file in the EJB-JAR file |
| Web class loader | Classes used by the web application | Class path of the manifest file in the WAR file |
| | Web application classes (class file) | WEB-INF/classes directory in the WAR file |
| | Web application classes (JAR file) | WEB-INF/lib directory in the WAR file |

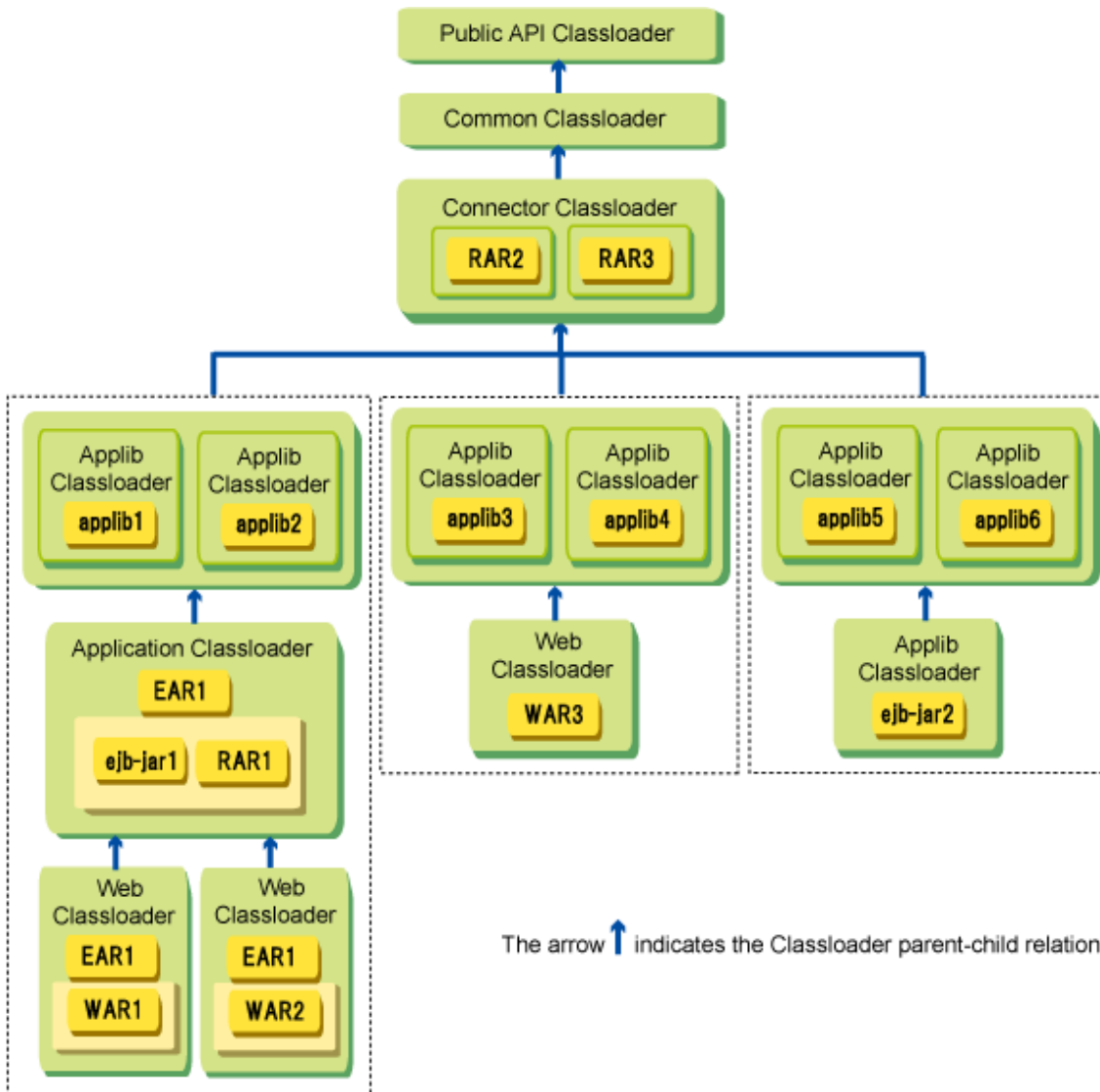
2.22.2 Classification of Class Loaders

The Interstage Java EE 6 class loaders are created, as shown in the table below.

| Class loader | Unit |
|-------------------------------|--|
| Extension class loader | One class loader is created in the Java VM process. |
| Public API class loader | One class loader is created in the Java VM process. |
| Common class loader | One class loader is created in the Java VM process. |
| Connector class loader | One class loader is created in the Java VM process. |
| 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, WAR, 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 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 class loader structure in the figure below applies when the Java EE application is deployed. The class loader is created and then loads the classes independently per deployment unit, indicated by the dotted line. For this reason, the same file, package, or class names can be used per deployment unit.



The arrow ↑ indicates the Classloader parent-child relationship.

Note

- Reference between different connector modules is not possible. For example, reference is not possible interactively between RAR2 and RAR3 in the figure above.
- Reference between different lifecycle modules is not possible. For example, reference is not possible interactively between LCM1 and LCM2 in the above figure.
- In the application library, the following references are not possible:
 - If multiple application libraries were specified in a single deployment unit, reference between those application libraries is not possible. For example, reference is not possible interactively between applib1 and applib2, applib3 and applib4, and applib5 and applib6 in the figure above.

- Resources loaded by the Connector class loader cannot be referenced from the application library. For example, reference of RAR2 from applib1, of RAR3 from applib3, and of RAR2 from applib5 is not possible in the figure above.

2.22.3 Changing the Delegation Model of the Web Class Loader

In the default settings of this product, the web class loader delegates the search of the resources to the parent class loader. However, it is also possible to configure the settings so that the web class loader can search the class before the parent class loader does.

Settings Method

Configure the settings in the glassfish-web.xml class-loader element, delegate attribute.

| 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 how to set glassfish-web.xml, refer to "[3.2.1.2 Interstage Web application deployment descriptor \(glassfish-web.xml\)](#)".

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 | Licenser Name Space |
| sun | JDK internal implementation |
| org.xml.sax | SAX |
| org.w3c.dom | DOM |
| org.apache.taglibs.standard | JSP Standard Tag Library implementation |
| com.sun.faces | JavaServer Faces implementation |
| org.apache.commons.logging | Apache Commons Logging |

2.22.4 Settings for classes used in Interstage Java EE 6

Common directory

Libraries used commonly in the Interstage Java EE 6 DAS service and all IIServer clusters (jar files or cluster files) are archived.

Libraries used by the user in applications, such as JDBC driver, can be set freely in the common directory.

Windows32/64

```
jar: [Java EE 6 common directory]\domains\domain1\lib
Class: [Java EE 6 common directory]\domains\domain1\lib\classes
```

Solaris32/64 Linux32/64

```
jar: [Java EE 6 common directory]/domains/domain1/lib
Class: [Java EE 6 common directory]/domains/domain1/lib/classes
```

System extensions directory

Archive the optional Java packages common to the Interstage Java EE 6 DAS service and all IJServer clusters.

For details on the optional packages, refer to "The Extension Mechanism" section of the JDK documentation.

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\lib\ext
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/lib/ext
```

Application library

Specify the common library that will be used in the application at the time of the deployment using the full path of the JAR file. The directory in which the library is 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.

Perform the deployment using the `asadmin` command.

For details, refer to "4.5 Deploying Applications".



To enable the update of the files archived in the common directory and the system extensions directory, it will be necessary to synchronize the repository and restart the Interstage Java EE 6 DAS service or IJServer cluster.

For details, refer to "2.1.4 Repository Synchronization".

2.22.5 Setting the XML Parser

This section explains how to set the XML parser that is used in Interstage Java EE 6.

The XML parser implementation used in Interstage Java EE 6 is determined using the service API. To change the XML parser implementation that is used in Interstage Java EE 6, set the JAR file for the XML parser implementation containing the service provider configuration file. For details on the settings, refer to "2.22.4 Settings for classes used in Interstage Java EE 6".

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.

- Overwriting the JAXP interface level

Copy the JAXP interface JAR file to the following directory, and then restart the Interstage Java EE 6 DAS service or IJServer cluster.

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\lib\endorsed
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/lib/endorsed
```

For details, refer to the Java document "Java Endorsed Standards Override Mechanism".

XML parsers that can be specified are those of a newer version than the one included in the JDK you are using. If the version of the specified XML parser is older than the XML parser included in JDK, the application may fail to start.

2.22.6 Notes About Using the Class Loader

This section provides important notes about using the class loader.

Note on Using Connectors

When running a connector that uses a native library, set the native library path in the PATH environment variable (in Solaris/Linux, this is LD_LIBRARY_PATH) to enable reference from the deployed Interstage Java EE 6 DAS service or IJServer cluster. For details, refer to "4.3.3 Environment Variable Settings".

Note on Using JNI with the Java EE Application

The same Native module cannot be loaded by separate class loaders. If the same Native module is loaded by separate class loaders, java.lang.UnsatisfiedLinkError will be thrown if a class that uses JNI is contained in the application (EAR, ejb-jar, WAR, RAR).

If java.lang.UnsatisfiedLinkError is thrown, archive the classes that use JNI in the common directory. Do not include these classes (these are classes that implement the native method) in the application.

Additionally, if classes that use JNI are included in the application (EAR, ejb-jar, WAR, RAR), the application will not be able to use HotDeploy.

java.lang.UnsatisfiedLinkError will be thrown and the attempt to use HotDeploy may fail. In this case, restart the Interstage Java EE 6 DAS service or IJServer cluster.

To use HotDeploy in an application that uses JNI, set the classes that use JNI in the common directory. Note that the Interstage Java EE 6 DAS service or IJServer cluster should be restarted if the classes that use JNI have been switched.

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 Interstage Java EE 6 DAS service or IJServer cluster management directory at the time of the first access. For this reason, if there are many resources in the JAR file, performance may 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 Interstage Java EE 6.

For details on the settings, refer to "2.22.4 Settings for classes used in Interstage Java EE 6".

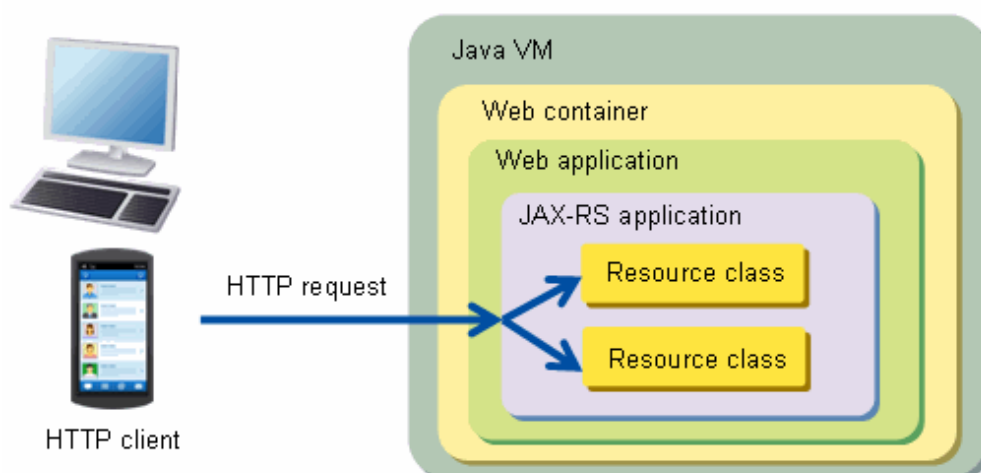
2.23 JAX-RS

JAX-RS (Java API for RESTful Web Services) is the standard Java API that is used for the easy development of REST applications. Using JAX-RS API, it is possible to implement web applications that follow the REST (Representational State Transfer) principle more rapidly than before.

In this product, it is possible to execute applications that conform to JAX-RS 1.1.

2.23.1 JAX-RS Applications

The JAX-RS application runs as a servlet on the web container, and the HTTP requests that were received are dispatched to the resource classes in the module. The resource classes are Java classes that represent the web resources, and that process the dispatched HTTP requests.



The JAX-RS application runs as a servlet on the web container, and the HTTP requests that were received are dispatched to the resource classes in the module. The resource classes are Java classes that represent the web resources, and that process the dispatched HTTP requests.

The JAX-RS application must be included in the web application module (WAR file) and then deployed. If the class (a subclass of `javax.ws.rs.core.Application` class) that stands for the JAX-RS application exists in the web application module that is to be deployed, the servlet that dispatches the requests to the JAX-RS resource class is registered automatically if required when the web application starts. The application developer does not need to create this servlet explicitly.

2.23.2 JAX-RS Application Development

For details on how to develop JAX-RS applications, refer to "[3.1.10 How to Create JAX-RS Applications](#)".

2.23.3 Support for JSON in JAX-RS Applications

JSON data can also be handled in JAX-RS applications.

JSON

JSON (JavaScript Object Notation) is a text-based data format that is fully in line with the notation of objects in JavaScript.

The specification is regulated by RFC4627.

JSON characteristics

JSON has the following characteristics:

- Lightweight
- Easy to describe
- Easy for a user to understand

Because of these characteristics, compared with other text-based data formats such as XML, data can be described in a concise way.

How to develop a JAX-RS application that handles JSON data

For details on how to develop a JAX-RS application that handles JSON data, refer to "[3.1.10 How to Create JAX-RS Applications](#)" and "[3.1.11 How to Use JSON Data in JAX-RS Applications](#)".

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

| Order of execution | Event | Timing of handleEvent method processing |
|--------------------|---------------|---|
| 1 | INIT_EVENT | This is processed prior to the start of the web container and the EJB container. |
| 2 | STARTUP_EVENT | This is processed prior to the loading of the deployed application and initialization. |
| 3 | 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

| Order of execution | Event | Timing of handleEvent method processing |
|--------------------|-------------------|---|
| 1 | SHUTDOWN_EVENT | This is processed after the acceptance of accesses from the web server connector has stopped, and after the application is discarded. |
| 2 | 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

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. Additionally, a resource that is registered in the naming service of another process or remote server cannot be looked up using the INS rules from the lifecycle module. For details on the naming service, refer to "2.14.1 Naming Service".

2.24.2 Operation Procedure for the Lifecycle Module

Settings of the Lifecycle Module

The lifecycle module is set using the asadmin command.

- Command
Create: [create-lifecycle-module subcommand](#)
Define: set subcommand "[Lifecycle Module Definition Items](#)"



- 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 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

2.25.1 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.

Property Name:


`com.sun.corba.ee.transport.ORBTCPCConnectTimeouts`

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. 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. The retry interval increases by a value multiplied by (backoff+100)/100 with each retry. | 1-2147483647 |

| Item | Content | Value range |
|-----------|---|--------------|
| |  Example When backoff is 20, the retry interval will be 1.2 times, and when backoff is 100, the retry interval will be double. | |
| maxsingle | The maximum retry interval per single occurrence (milliseconds) is set. | 1-2147483647 |

Default Value:

```
250:60000:100:5000
```

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
```

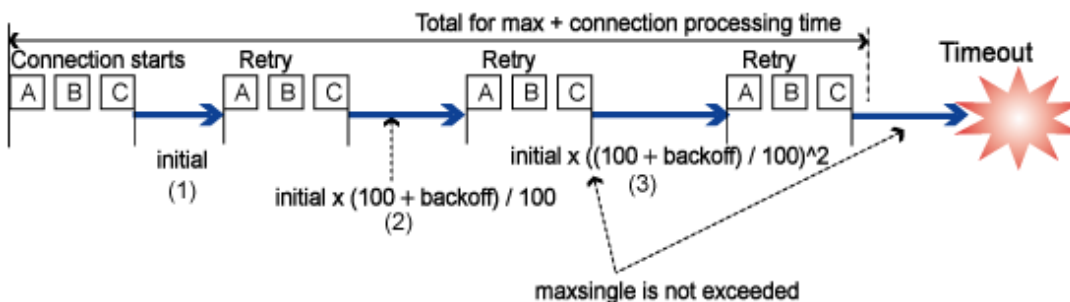
Solaris32/64 Linux32/64

```
VMARGS=-Dcom.sun.corba.ee.transport.ORBTCPCConnectTimeouts=Value that is set
export VMARGS
```

- When a standalone client is used
Specify the setting in the Java VM option.

```
-Dcom.sun.corba.ee.transport.ORBTCPCConnectTimeouts=Value that is set
```

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. The interval from the connection retry until the wait is repeated.

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). |
| 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. |

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: 201 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: 201 completed: No]
```



RMI-IIOP is not used for calls in the IJServer cluster process, therefore monitoring will not be performed.

2.25.2 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
```



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 standalone 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
```



Note

RMI-IIOP is not used for calls in the IJServer cluster process, therefore monitoring will not be performed.

2.25.3 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 | The backoff value (integer) is set. Normally, a value between 10 and 100 is set. The retry interval increases by a value multiplied by $(backoff+100)/100$ with each retry. | 1-2147483647 |

| Item | Content | Value range |
|-----------|---|--------------|
| |  Example When backoff is 20, the retry interval will be 1.2 times, and when backoff is 100, the retry interval will be double. | |
| 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.ee.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.ee.transport.ORBTCPTimeouts=Value that is set
```

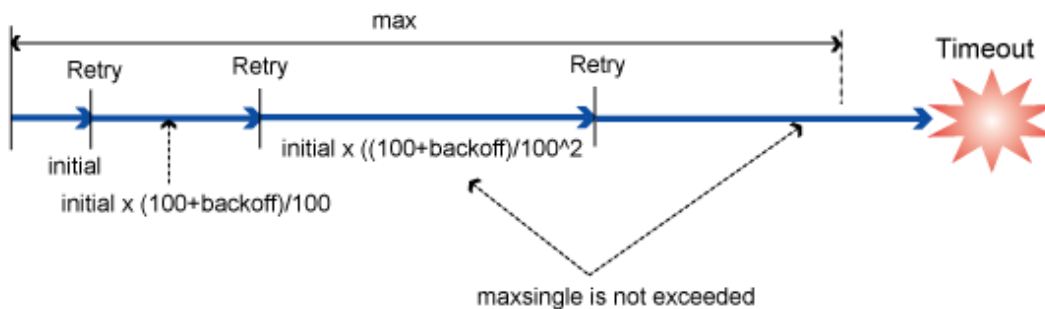
Solaris32/64 Linux32/64

```
VMARGS=-Dcom.sun.corba.ee.transport.ORBTCPTimeouts=Value that is set
export VMARGS
```

- When a standalone client is used
Specify the setting in the Java VM option.

```
-Dcom.sun.corba.ee.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 IIServer 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.

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 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, compiled and packaged in the Servlet 3.0 WAR module (for JAX-WS endpoints) or EJB 3.1 ejb-jar module (for Stateless Session Bean or Singleton 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 |

Developing the Web Service Application

1. Create the endpoint implementation classes

The Web service application implementation is created as one of the classes shown below. The public method of these classes will be used to make the Web service operation public. For details on the data types that can be used in the public target methods, refer to "[3.1.3 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 arguments is required.
 - The data types explained in "[3.1.3 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 "[3.1.3 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.
- Singleton Session Bean
 - The `javax.jws.WebService` annotation is added to the Singleton Session Bean class.
 - The data types explained in "[3.1.3 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.

JAX-WS endpoint

```
package stock.server;
@javax.jws.WebService
public class StockQuoteProvider {
public StockQuoteProvider () {}

public float getLastTradePrice (String tickerSymbol) {
return "abc".equals(tickerSymbol)? 1234.Of : 0.Of;
}
}
```

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 webservicexml <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.
- When creating the service endpoint interface, the endpointinterface attribute should not be specified in the javax.jws.WebService annotation of the service endpoint interface.

2. Compile the endpoint implementation classes

Compile the endpoint implementation classes. In the compile, specify the following option in the javac command:

Windows32/64

```
-endorseddirs C:\Interstage\F3FMisje6\glassfish\modules\endorsed;C:\Interstage\F3FMisje6\glassfish\lib\endorsed
```

Solaris32/64 Linux32/64

```
-endorseddirs /opt/FJSVisje6/glassfish/modules/endorsed:/opt/FJSVisje6/glassfish/lib/endorsed
```

Example

```
javac -endorseddirs C:\Interstage\F3FMisje6\glassfish\modules\endorsed;C:\Interstage\F3FMisje6\glassfish\lib\endorsed -
classpath 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 1.3 specifications must be followed correctly.

Deploying and Obtaining/Storing WSDL

The packaged module is deployed to IJServer cluster in the same way as the normal module.

Example

Deploying the WAR module to IJServer cluster

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin deploy --target IJServerWS StockQuote.war
```

Solaris32/64 Linux32/64

```
/opt/F3SVisje6/glassfish/bin/asadmin deploy --target IJServerWS StockQuote.war
```

When the deployed application is operational, the WSDL can be obtained by adding "?wsdl" 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 and Singleton 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 (80/443) for the transport protocol (HTTP/HTTPS), "<port number>" can be omitted. |
| Context root | WAR file context root (the default is the WAR file name minus '.war'). |
| Web service name | serviceName attribute specified in the deployment descriptor or javax.jws.WebService annotation. If not specified, the value used will be the class name followed by 'Service' (the implementation class package name will not be included). |
| Endpoint name | Port component name specified in the deployment descriptor or the name attribute specified in the javax.jws.WebService annotation. If not specified the value used will be the class name (the implementation class package name will not be included). |

Normally, WSDL consists of multiple files according to a mechanism that contains external XML such as the wsdl:import and xs:import elements. Whole sets including import destinations can be obtained using the ijwsimport command.



Example

Obtaining a WSDL set in the ijwsimport command

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\ijwsimport -nogenerate -s dev\wsdl http://ws.example.com/StockQuote/StockQuoteProviderService?wsdl
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/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.

3.1.2 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 "Developing the Web Service Client Application", 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 "3.1.4 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.

Developing the Web Service Client Application

1. Generate the stub

Generate the stub to be used in JAX-WS from the WSDL obtained, by using the ijwsimport command (for details, refer to "9.9 ijwsimport").



Example

Generating the stub by obtaining the WSDL from the URL that was notified

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\ijwsimport -keep http://ws.example.com/StockQuote/StockQuoteProviderService?wsdl
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/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

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. During compilation, specify the following option in the `javac` command:

Windows32/64

```
-endorseddirs C:\Interstage\F3FMisje6\glassfish\modules\endorsed;C:\Interstage\F3FMisje6\glassfish  
\lib\endorsed
```

Solaris32/64 **Linux32/64**

```
-endorseddirs /opt/FJSVisje6/glassfish/modules/endorsed:/opt/FJSVisje6/glassfish/lib/endorsed
```



Example

When there is a source file and stub type root directory in the current directory

```
javac -endorseddirs C:\Interstage\F3FMisje6\glassfish\modules\endorsed;C:\Interstage\F3FMisje6\glassfish\lib  
\endorsed -classpath . 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 to be packaged, and include it in the module.

For details on the application client packaging, refer to "3.1.5 Creating the Client Application".



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, action must be taken, such as obtaining this from the `javax.xml.ws.Service` object per request, and using the exclusive thread lock.
- Do not use the JAXB object and 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

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..

3.1.3 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 here 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 (class type, interface type, or array type or the java.lang package classes that wrap the Bean, array, collection, attachment, and primitive types explained in this section), 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.
- 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 |
| ws-i | 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
 - Property setter/getter



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

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>
```

```
</xs:sequence>
</xs:complexType>
```

To customize the definition using annotation, make the declaration as follows. Declare the annotation in the getter method for the property.

Example

Defining the Bean type using an 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 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 uppercase or lowercase 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

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 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. Both methods use the MIME multi-part structure 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

Creating a Web service application client that uses attachment files in the MTOM method

```
@MTOM
@WebService
public class Hello {
    @WebMethod
    public void upLoad(String saveFileName,
        @XmlMimeType("*//*") DataHandler data) {
        :
    }
}
```



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

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

Creating a Web service client application 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 MB 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

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

- 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 always be retained correctly according to the class specification. 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 a @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 xs:base64Binary type data and sent.
- When an attachment file of 1MB 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<number>.tmp

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, make sure that there are write permissions for executing IJServer cluster and 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

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 service application and the Web service 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.

When the Web service call ends, the value that was returned by the Web service application as the out parameter is set in the value field of the Holder object.



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

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 in the above example, the result
is "abc")
:

```

Note

Notes on 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

Other notes

- As a guide, if the communication data size exceeds several 100KB (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 10MB, 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.

3.1.4 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 6 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

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 ';')

3.1.5 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

When 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 applclient command is searched.

Example

When 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 standalone 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.

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.

Example

```
import javax.ejb.*;

public class MyClass {
    @EJB static MyRemote remote;
    public static void main(String[] args) {
        ...
    }
}
```

3.1.6 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 "[2.14.2 Environment Naming Context](#)".

3.1.7 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 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.

- 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.

Notes about using a non-transaction connection, or accessing the database without starting the JTA transaction, are as follows:

Note

- 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_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.

- 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.

- 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:

- 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.

3.1.8 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

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
```

In the handleEvent method, the processing when the various lifecycle events are notified is implemented. When the process fails, a com.sun.appserv.server.ServerLifecycleException is thrown. (*1)

*1 If com.sun.appserv.server.ServerLifecycleException is thrown, the JJServ 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 lifecycle event are defined.

- INIT_EVENT
- STARTUP_EVENT
- READY_EVENT
- SHUTDOWN_EVENT
- TERMINATION_EVENT



Example

A sample implementation of the LifecycleListener interface

```
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. It can be obtained in all lifecycle events.

- `public java.lang.Object getData()`



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

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

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;
        }
    }
}
```

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\F3FMisje6\glassfish\modules\glassfish-api.jar
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/modules/glassfish-api.jar
```

For details on each interface, refer to Javadoc published by Oracle.

3.1.9 Creating JMS Client Applications

JMS client applications can be created using the applications shown below.

Create the JMS client applications in accordance with the JMS 1.1 specifications.

- Web application or EJB application
- Java EE application client
- Java SE standalone application

Procedure to create a JMS client application

1. Create the application

Plan and use the JMS according to your JMS objectives.

For details on the design, refer to "[4.15.1 Design Methods](#)".

2. Compile the application

The JAR files shown below are required to compile the application.

When compiling the application, specify the following JAR files and then compile the application.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\lib\javaee.jar
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/lib/javaee.jar
```

3.1.10 How to Create JAX-RS Applications

This section explains how to create a typical application according to the JAX-RS specifications (for details, refer to the JAX-RS and Java EE specifications).

- [How to code JAX-RS applications](#)
- [Creating the JAX-RS application module](#)
- [Access URL](#)
- [Standard data types that can be used in the JAX-RS application](#)
- [Additional data types that can be used in JAX-RS applications](#)
- [Other notes](#)

How to code JAX-RS applications

When creating the JAX-RS application, the following two types of classes are coded:

- Application subclasses

- Resource classes

1. Creating the Application Subclass

The Application subclass that inherits the `javax.ws.rs.core.Application` class represents one JAX-RS application. If there is an Application subclass in the deployed module, the resource class in the module is searched and published as a Web resource.

Create the Application subclass as follows:

- Inherit the `javax.ws.rs.core.Application` class.
- Declare the `@javax.ws.rs.ApplicationPath` annotation for the class, and define the JAX-RS application root path as a relative path from the Web application context root.
- If required, override the `getClasses` or `getSingletons` method and specify the resource class to be published. If the latter is not specified or the methods are not overridden, then all resource classes in the module will be published.



Example

Creating the Application subclass

```
@ApplicationPath("samples")
public class JAXRSSampleApplication extends Application{
}
```

In the above example, the `JAXRSSampleApplication` class does not override the `Application` class method, therefore all resources in the war file are published as resources of this JAX-RS application. Additionally, the HTTP request to the path under Web application context root/samples is dispatched to the resource class.

2. Creating the Resource Class

The resource class is a Java class that represents the Web resources. Create this class as follows:

- Declare the `@javax.ws.rs.Path` annotation in the class, and specify a relative path from the JAX-RS application root path.
- Implement the resource method as follows in the method that performs the request processing:
 - Declare the `@javax.ws.rs.GET` or `@javax.ws.rs.POST` annotation, for example, and map it to the HTTP request method.
 - If necessary, declare the `@javax.ws.rs.Consumes` annotation and a MIME type that can be processed by the method.
 - If necessary, declare the `@javax.ws.rs.Produces` annotation and a response data MIME type that can be returned to the client by the method.
 - If necessary, declare the `@Path` annotation. If `@Path` is declared in the resource method, the path that concatenates the values defined in the resource method after the values defined in the resource class will be the method access URL.
 - If part of the request URL is used as a parameter, the `@Path` value will contain a string that is enclosed in braces (for example, `{id}`). This string is a template variable that represents values that do not contain `'/'`. Values in the request URL that correspond to the template variable can be referenced from arguments that have been assigned the `@javax.ws.rs.PathParam` annotation.



Example

Creating the resource class

```
@Path("/resource")
public class SampleResource{
    @GET
    @Produces("text/html")
    public String getResource(){
        return "<html><body><p>Hello JAXRS</p></body></html>";
    }
}
```

Creating the resource class when part of the request URL is treated as a parameter

```

@Path("/colors")
public class ColorResource {
    @GET
    @Path("/{colorName}")
    @Produces("text/html")
    public String getColorInfo(@PathParam("colorName") String name) {
        return "<html><body><p>Color name: " + name + "</p></body></html>";
    }
}

```

Creating the JAX-RS application module

The JAX-RS application is included in the Servlet 3.0 format WAR module and then deployed as a part of the web application. Include the created Application subclass and resource class in the WAR file and then deploy the application.

Example

Example of the layout of the WAR module that contains the JAX-RS application

```

/
META-INF/
  MANIFEST.MF
WEB-INF/
  classes/
    jaxrssample/
      ColorResource.class
      JAXRSSampleApplication.class
      SampleResource.class

```

Access URL

The JAX-RS resource access URL is determined as shown below. Add or remove the path delimiter (/) as necessary.

```

http://<host>:<port>/<context root>/<Application subclass>@<ApplicationPath value>/<resource class>@<Path value>/<resource method>@<Path value>

```

If the Application subclass and resource class in the examples in "How to code JAX-RS applications" were used, using the HTTP GET method to send the request in the URL shown below will call the SampleResource class getResource() method.

```

http://<host>:<port>/<context root>/samples/resource

```

Additionally, using the HTTP GET method to send the request in the URL shown below will call the ColorResource class getColorInfo() method.

```

http://<host>:<port>/<context root>/samples/colors/<string without forward slash>

```

Note

- The above examples are abbreviated for the purposes of explanation. However, in the actual business, consideration must be given to measures against cross-site scripting and to character encoding.
- In the same way, so that access to resources in the application is not allowed from an unintended URL pattern or HTTP method, also consider configuring appropriate security settings in the Web application deployment descriptor (web.xml).
- By default, one instance of the resource class is generated for each request. To process all requests in a single instance, implement the getSingletons() method in the Application subclass so that the Set object in which the corresponding instance is stored will be returned.

- For details on the MIME types that can be used as @Consumes and @Produces values, refer to "[Standard data types that can be used in the JAX-RS application](#)", "[Additional data types that can be used in JAX-RS applications](#)".
- The Application subclass must exist in the war file in the JAX-RS application or the JAX-RS application definition must exist in the deployment descriptor. If these do not exist, the resource class in the module will be ignored and not published. For details on how to define the JAX-RS application using the deployment descriptor, refer to the JAX-RS specifications.
- If the module that contains the Application subclass is deployed, the name of the Application subclass will be displayed as the component by the asadmin list-sub-components command ('<JSP>' will be displayed as the component type).

Standard data types that can be used in the JAX-RS application

In this product, the following combinations of Java classes and MIME media types (MIME types) supported as standard in the JAX-RS specifications can be used by default.

| Java class | MIME type (* represents any MIME type/subtype) |
|--|--|
| byte[] | */* |
| java.lang.String | */* |
| java.io.InputStream | */* |
| java.io.Reader | */* |
| java.io.File | */* |
| javax.activation.DataSource | */* |
| javax.xml.transform.Source | text/xml,application/xml,application/*+xml |
| java.xml.bind.JAXBElement Class that declares @XmlRootElement | text/xml,application/xml,application/*+xml |
| javax.ws.rs.core.MultivaluedMap<String,String> | application/x-www-form-urlencoded |
| javax.ws.rs.core.StreamingOutput | */* |

To use a combination not shown above, create a JAX-RS entity provider that implements the javax.ws.rs.ext.Interface.MessageBodyReader or javax.ws.rs.ext.Interface.MessageBodyWriter interface, and include it in the application. For details on the JAX-RS entity provider, refer to the JAX-RS specifications.

Note

- The javax.ws.rs.core.StreamingOutput class can only be used when a response is returned.
- The javax.xml.transform.Source class can only be used when a response is returned. To use this class when a request is received, specify one of the following classes in the resource method argument instead of the Source class:
 - javax.xml.transform.stream.StreamSource
 - javax.xml.transform.sax.SAXSource
 - javax.xml.transform.dom.DOMSource
- The javax.xml.bind.JAXBElement class must specify the type parameter, as in "JAXBElement<BeanClass>".
- By using the javax.xml.bind.JAXBElement class as the type parameter for the Collection type, you can handle XML that contains multiple values. The following Collection types can be used:
 - java.util.ArrayList, or inherited classes
 - java.util.LinkedList, or inherited classes
 - java.util.HashSet, or inherited classes
 - java.util.TreeSet, or inherited classes

- java.util.Stack, or inherited classes
- Classes which implement java.util.Collection and which have the public constructor

The following example shows how to specify the javax.xml.bind.JAXBElement class as the type parameter for the java.util.ArrayList Collection type:

```
java.util.ArrayList<JAXBElement<BeanClass>>
```

- If the class declares @XmlRootElement, it must be able to be converted using JAXB.
- If the @Consumes or @Produces annotation is omitted, the treatment will be the same as when "*/*" is specified.
- If "*/*" is specified in @Consumes, the Content-Type header value set in the response message will be determined from the object type of the request message Accept header or method return value. For details, refer to the JAX-RS specifications.
- If the java.io.File class is used when the request is received, the file will be created according to the naming rules shown below in the directory set in the java.io.tmpdir system property, and the object that references the created file will be passed to the application.
 - rep<number>tmp

In the location in which the file is created, secure sufficient disk space for the traffic density and file size. Additionally, after it has been used by the application, call the delete method to delete the file.

If an exception occurs or the Java process ends abnormally, from the time the JAX-RS runtime generates the File object until the application deletes the file, the file will exist. If this happens, make sure that the file is not being used by a process, and then manually delete it.

To run the server instance after changing the default java.io.tmpdir value, make sure that the process execution user has write permission.

Additional data types that can be used in JAX-RS applications

In this product, JSON can be used in addition to the standard data type that is supported in the JAX-RS specifications.

For details on the Java classes that can be used in JSON, refer to the serialization rules and deserialization rules.

| Java class | MIME type |
|--|------------------|
| Refer to " 3.1.11.3 Serialization Rules " and " 3.1.11.4 Deserialization Rules " | application/json |



Note

For details on how to use JSON data in JAX-RS applications, refer to "[3.1.11.2 How to Use JSON Data](#)".

Other notes

If processing is performed after receiving high volume of data from the client, depending on the data type or heap size there may be insufficient memory during processing. If necessary, restrict the input stream size received by the JAX-RS application servlet by implementing ServletFilter.

3.1.11 How to Use JSON Data in JAX-RS Applications

3.1.11.1 Overview of JSON Data

The JSON data is shown as text data. The JSON data content is comprised of JSON objects and JSON arrays.

JSON objects and arrays

The name and value pairs in the JSON data are referred to in this document as "JSON members".

A collection of one or more JSON members is referred to in this document as a "JSON object". Additionally, a collection of one or more values that have a sequence is referred to as a "JSON array".

The JSON member name part contained in the JSON object is represented as a string.

For details on the JSON object and JSON array values, refer to the explanation in "[JSON data values](#)".

The JSON data uses JSON objects or arrays as the top level components. For details on this representation method, refer to RFC4627.

JSON data values

The JSON object and JSON array have values, however this value is represented by a string, numeric, true/false value, null value, JSON object, or JSON array.

For details on the values that can be specified for each, refer to RFC4627.

In this document, the JSON data values are represented according to the content, as follows:

1. The content represented in the string is a JSON string
2. The content represented in the numeric is a JSON numeric
3. The content represented in the true/false value is a JSON true/false value
4. The content represented in the null value is a JSON null value

In addition to the above representations for the JSON data value, the following representations are also possible:

1. JSON object
2. JSON array

In other words, JSON data representations that combine JSON strings, JSON numerics, JSON true/false values, JSON null value arrays, and multiple type values are possible. (Refer to the JSON data examples shown below.)



Example

Example in which the JSON data is represented by a JSON object

In examples 1 and 2 below, data is handled the same.

Example 1

```
{"name": "Fujitsu, Taro", "age": 20, "authority1": true, "authority2": false, "note": null}
```

Example 2

```
{
  "name": "Fujitsu, Taro",
  "age": 20,
  "authority1": true,
  "authority2": false,
  "note": null
}
```

Example in which the JSON data is represented by a JSON array

```
[2, 3, 5, 7, 11, 13, 17, 19, 23, 29]
```

Example in which the JSON data is represented by a JSON object containing JSON arrays in the values

```
{"color": ["red", "blue", "white", "green", "black"], "amount": [10, 5, 0, 3, 6]}
```

3.1.11.2 How to Use JSON Data

There is a deserialization function that analyzes the JSON data and then converts it to a Java object, and a serialization function that converts the Java object to JSON data.

Deserialization

The received JSON data is converted to the Java object that is passed to the application

Serialization

The Java object that is returned as a return value by the application is converted to JSON data when the Java object is sent

To use JSON serialization and deserialization in a JAX-RS application, the following actions are required in addition to creating the JAX-RS application:

- 1)Specify serialization/deserialization of the JSON data
- 2)Specify the MIME type
- 3)Specify the conversion destination/source for the JSON data

The information required for the processing of the above is explained below.

1)Specify serialization/deserialization of the JSON data

To perform serialization/deserialization, it will be necessary to specify `@com.fujitsu.interstage.javaee.ws.rs.JSONMapping` for the Application subclass in the JAX-RS application.



Example

Example of how to specify @JSONMapping

```
import javax.ws.rs.core.Application;
import javax.ws.rs.ApplicationPath;
import com.fujitsu.interstage.javaee.ws.rs.JSONMapping;

@ApplicationPath("/")
@JSONMapping
public class JsonApp extends Application {
}
```

2)Specify the MIME type

Specify the MIME data type for the JSON data that will be handled in the JAX-RS application. For this reason, "application/json" must be specified for `@Consumes` or `@Produces` of the resource method.



Example

Example of how to specify the MIME data type

```
@POST
@Consumes("application/json")
@Produces("application/json")
public Result process(Input input){
    ...
}
```

3)Specify the conversion destination/source for the JSON data

To specify the Java class that will perform the conversion to JSON data, one of the Java classes shown below, all of which can be converted to the top level elements of the JSON data (JSON objects or arrays), must be declared as the argument or return value type of the resource method.

- Java Bean
- `java.util.Map<String,?>`class

- java.util.List<?>class

Other Java types can also be used for the above class internal elements (Java Bean member or array elements, for example). For details on the Java classes and the rules for conversion to JSON data, refer to "[3.1.11.3 Serialization Rules](#)" - "[Table 3.1 Serialization Rules \(JSON objects\)](#)", "[Table 3.2 Serialization Rules \(JSON arrays\)](#)", "[3.1.11.4 Deserialization Rules](#)" - "[Table 3.4 Deserialization Rules \(JSON objects\)](#)", "[Table 3.5 Deserialization Rules \(JSON arrays\)](#)"

3.1.11.3 Serialization Rules

The corresponding rules for the Java types and the JSON data that can be used in serialization are explained in the following three tables:

- [Table 3.1 Serialization Rules \(JSON objects\)](#)
- [Table 3.2 Serialization Rules \(JSON arrays\)](#)
- [Table 3.3 Serialization Rules \(other members\)](#)

The "Java type" column in the table below lists the Java type used in serialization. JSON data generated as the result of serialization is listed in the "JSON data" column. Examples of JSON data serialized from Java-type values, serialization conditions, and remarks, are listed in the "Serialization rule" column.

"[Table 3.1 Serialization Rules \(JSON objects\)](#)" and "[Table 3.2 Serialization Rules \(JSON arrays\)](#)" list the Java types that can be serialized as JSON objects or arrays. To serialize the Java type, the Java class of this Java type must be specified as the return value of the resource method.

The items listed in "[Table 3.1 Serialization Rules \(JSON objects\)](#)", "[Table 3.2 Serialization Rules \(JSON arrays\)](#)", and "[Table 3.3 Serialization Rules \(other members\)](#)" can be used as member Java types in the Java object.

Table 3.1 Serialization Rules (JSON objects)

| Java type | JSON data | Serialization rule (Java type->JSON data) |
|--|-----------------|---|
| Java Bean (any class) | JSON object | - public field->JSON member - property->JSON member - If there is a public field and a property with the same name, the property has the higher priority. - If there is an empty Bean (no public field or property), JsonMappingException occurs. - JSON members in the JSON object are serialized in random order. |
| | JSON null value | - null->JSON null value |
| java.util.Map<String, ?> (Only the Java types described in this document can be specified as type parameters. Note that primitive types cannot be specified.) | JSON object | - map->JSON object - empty map->empty JSON object |
| | JSON null value | - null->JSON null value |

Table 3.2 Serialization Rules (JSON arrays)

| Java type | JSON data | Serialization rule (Java type->JSON data) |
|---|-----------------|---|
| java.util.List<?> (Only the Java types described in this document can be specified as type parameters. Note that primitive types cannot be specified.) | JSON array | - array->JSON array - empty list->empty JSON array |
| | JSON null value | - null->JSON null value |

Table 3.3 Serialization Rules (other members)

| Java type | JSON data | Serialization rule (Java type->JSON data) |
|---------------------|-----------------------|--|
| boolean | JSON true/false value | - true->>true - false->>false |
| byte | JSON numeric | Values in the following range can be serialized: - Byte.MIN_VALUE to Byte.MAX_VALUE |
| double | JSON numeric | Values in the following range can be serialized: - Double.MIN_VALUE to Double.MAX_VALUE |
| float | JSON numeric | Values in the following range can be serialized: - Float.MIN_VALUE to Float.MAX_VALUE |
| int | JSON numeric | Values in the following range can be serialized: - Integer.MIN_VALUE to Integer.MAX_VALUE |
| long | JSON numeric | Values in the following range can be serialized: - Long.MIN_VALUE to Long.MAX_VALUE |
| short | JSON numeric | Values in the following range can be serialized: - Short.MIN_VALUE to Short.MAX_VALUE |
| java.lang.Boolean | JSON true/false value | - true->>true - false->>false |
| | JSON null value | - null->JSON null value |
| java.lang.Byte | JSON numeric | Values in the following range can be serialized: - Byte.MIN_VALUE to Byte.MIN_VALUE |
| | JSON null value | - null->JSON null value |
| java.lang.Character | JSON string | - character->JSON string |
| | JSON null value | - null->JSON null value |
| java.lang.Double | JSON numeric | Values in the following range can be serialized: - Double.MIN_VALUE to Double.MAX_VALUE |
| | JSON null value | - null->JSON null value |
| java.lang.Float | JSON numeric | Values in the following range can be serialized: - Float.MIN_VALUE to Float.MAX_VALUE |
| | JSON null value | - null->JSON null value |
| java.lang.Integer | JSON numeric | Values in the following range can be serialized: - Integer.MIN_VALUE to Integer.MAX_VALUE |
| | JSON null value | - null->JSON null value |
| java.lang.Long | JSON numeric | Values in the following range can be serialized: - Long.MIN_VALUE to Long.MAX_VALUE |
| | JSON null value | - null->JSON null value |
| java.lang.Short | JSON numeric | Values in the following range can be serialized: - Short.MIN_VALUE to Short.MAX_VALUE |
| | JSON null value | - null->JSON null value |
| java.lang.String | JSON string | - string->JSON string - The following characters are escaped in \(%x5C): |

| Java type | JSON data | Serialization rule (Java type->JSON data) |
|-----------|-----------------|--|
| | | <ul style="list-style-type: none"> - "(%x22)->\"" - \"(%x5C)->\\ - /(%x2F)->/ - backspace(%x62)->\\b - form feed(%x66)->\\f - line feed(%x6E)->\\n - carriage return(%x72)->\\r - tab(%x74)->\\t |
| | JSON null value | - null->JSON null value |

3.1.11.4 Deserialization Rules

To deserialize JSON data, the corresponding Java type must be prepared. The corresponding rules are explained in the following six tables:

- [Table 3.4 Deserialization Rules \(JSON objects\)](#)
- [Table 3.5 Deserialization Rules \(JSON arrays\)](#)
- [Table 3.6 Deserialization Rules \(JSON strings\)](#)
- [Table 3.7 Deserialization Rules \(JSON numerics\)](#)
- [Table 3.8 Deserialization Rules \(JSON true/false values\)](#)
- [Table 3.9 Deserialization Rules \(JSON null values\)](#)

The "JSON data" column in the table lists the deserialization target JSON data, the "Java type" column lists the Java type corresponding to the JSON data when it is deserialized, and the "Deserialization rule" column lists examples of the Java objects that were deserialized as Java objects from the JSON data, deserialization conditions, and notes.

"[Table 3.4 Deserialization Rules \(JSON objects\)](#)" and "[Table 3.5 Deserialization Rules \(JSON arrays\)](#)" list the Java types that can be deserialized from JSON objects or JSON arrays. To deserialize the Java type, the Java class of this Java type must be specified as the argument of the resource method.

For details on the deserialization rules for members in the JSON object and JSON array, refer to "[Table 3.4 Deserialization Rules \(JSON objects\)](#)", "[Table 3.5 Deserialization Rules \(JSON arrays\)](#)", "[Table 3.6 Deserialization Rules \(JSON strings\)](#)", "[Table 3.7 Deserialization Rules \(JSON numerics\)](#)", "[Table 3.8 Deserialization Rules \(JSON true/false values\)](#)", and "[Table 3.9 Deserialization Rules \(JSON null values\)](#)".

Table 3.4 Deserialization Rules (JSON objects)

| JSON data | Java type | Deserialization rule (JSON data->Java type) |
|-------------|---|--|
| JSON object | Java Bean (any class) | <ul style="list-style-type: none"> - JSON member->public field or property <p>Note: The names of the JSON member and the names of the public field or property must match.</p> <ul style="list-style-type: none"> - If there is a public field and a property with the same name, the property has priority. - If there is an empty Bean (no public field or property), JsonMappingException occurs. - For a Bean of getter only, if a field value of the same name is defined, the value for this field will be set even if it is not public. - If neither the public field nor the property has the same name as the JSON member, JsonMappingException occurs. |
| | java.util.Map<String, ?> (Only the Java types described in this document can be specified as the type) | <ul style="list-style-type: none"> - empty JSON object->empty map - JSON object->map |

| JSON data | Java type | Deserialization rule (JSON data->Java type) |
|-----------|--|---|
| | parameters supported as generic types. Note that primitive types cannot be specified.) | |

Table 3.5 Deserialization Rules (JSON arrays)

| JSON data | Java type | Deserialization rule (JSON data->Java type) |
|------------|--|--|
| JSON array | java.util.List<?> (Only the Java types described in this document can be specified as the type parameters supported as generic types. Note that primitive types cannot be specified.) | - JSON array->list - empty JSON array->empty list |

Table 3.6 Deserialization Rules (JSON strings)

| JSON data | Java type | Deserialization rule (JSON data->Java type) |
|-------------|------------------|---|
| JSON string | java.lang.String | - The JSON string converts to a string, however the escaped (\; %x5C) characters are shown as follows: - \"->\"(%x22) - \\->\"(%x5C) - \v->\"(%x2F) - \b->backspace(%x62) - \f->form feed(%x66) - \n->line feed(%x6E) - \r->carriage return(%x72) - \t->tab(%x74) - \uXXXX->Unicode characters |

Table 3.7 Deserialization Rules (JSON numerics)

| JSON data | Java type | Deserialization rule (JSON data->Java type) |
|--------------|-----------|--|
| JSON numeric | boolean | - 0->>false - 0.0->>false - In all other cases, this is true. |
| | byte | Values in the following range can be deserialized: - Byte.MIN_VALUE to Byte.MAX_VALUE - In all other cases, JsonMappingException occurs. |
| | char | Values in the following range can be deserialized: - 0 to 65535 changes to the corresponding Unicode characters. - In all other cases, JsonMappingException occurs. |
| | double | Values in the following range can be deserialized: - Double.MIN_VALUE to Double.MAX_VALUE - For numerics outside the above range, the minimum or maximum value for that value is used. |
| | float | Values in the following range can be deserialized: |

| JSON data | Java type | Deserialization rule (JSON data->Java type) |
|-----------|---------------------|--|
| | | - Float.MIN_VALUE to Float.MAX_VALUE - For numerics outside the above range, the minimum or maximum value for that value is used. |
| | int | Values in the following range can be deserialized: - Integer.MIN_VALUE to Integer.MAX_VALUE - In all other cases, JsonMappingException occurs. |
| | long | Values in the following range can be deserialized: - Long.MIN_VALUE to Long.MAX_VALUE - In all other cases, JsonMappingException occurs. |
| | short | Values in the following range can be deserialized: - Short.MIN_VALUE to Short.MAX_VALUE - In all other cases, JsonMappingException occurs. |
| | java.lang.Boolean | - 0->>false - 0.0->>false - In all other cases, this is true. |
| | java.lang.Byte | Values in the following range can be deserialized: - Byte.MIN_VALUE to Byte.MAX_VALUE - In all other cases, JsonMappingException occurs. |
| | java.lang.Character | Values in the following range can be deserialized: - 0 to 65535 changes to the corresponding Unicode characters. - In all other cases, JsonMappingException occurs. |
| | java.lang.Double | Values in the following range can be deserialized: - Double.MIN_VALUE to Double.MAX_VALUE - For numerics outside the above range, the minimum or maximum value for that value is used. |
| | java.lang.Float | Values in the following range can be deserialized: - Float.MIN_VALUE to Float.MAX_VALUE - For numerics outside the above range, the minimum or maximum value for that value is used. |
| | java.lang.Integer | Values in the following range can be deserialized: - Integer.MIN_VALUE to Integer.MAX_VALUE - In all other cases, JsonMappingException occurs. |
| | java.lang.Long | Values in the following range can be deserialized: - Long.MIN_VALUE to Long.MAX_VALUE - In all other cases, JsonMappingException occurs. |
| | java.lang.Short | Values in the following range can be deserialized: - Short.MIN_VALUE to Short.MAX_VALUE - In all other cases, JsonMappingException occurs. |
| | java.lang.String | - JSON numeric->string |

Table 3.8 Deserialization Rules (JSON true/false values)

| JSON data | Java type | Deserialization rule (JSON data->Java type) |
|-----------------------|-----------|---|
| JSON true/false value | boolean | - true->>true - false->>false |

| JSON data | Java type | Deserialization rule (JSON data->Java type) |
|-----------|-------------------|---|
| | java.lang.Boolean | - true->>true - false->>false |
| | java.lang.String | - JSON true/false value->string |

Table 3.9 Deserialization Rules (JSON null values)

| JSON data | Java type | Deserialization rule (JSON data->Java type) |
|---|---|---|
| JSON null value | java.lang.Boolean | - null->>null |
| | java.lang.Byte | - null->>null |
| | java.lang.Double | - null->>null |
| | java.lang.Float | - null->>null |
| | java.lang.Integer | - null->>null |
| | java.lang.Long | - null->>null |
| | java.lang.Short | - null->>null |
| | java.lang.String | - null->>null |
| | Bean (any class) | - null->>null |
| | java.util.Map<String, ?> | - null->>null |
| | (Only the Java types described in this document can be specified as the type parameters supported as generic types. Note that primitive types cannot be specified.) | |
| java.util.List<?> | - null->>null | |
| (Only the Java types described in this document can be specified as the type parameters supported as generic types. Note that primitive types cannot be specified.) | | |

3.1.11.5 Library Module

The libraries that provide this function are as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\modules\jersey-core.jar
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/modules/jersey-core.jar
```

When compiling the implementation class that uses this function, specify the following options using the javac command:

Windows32/64

```
-classpath C:\Interstage\F3FMisje6\glassfish\modules\jersey-core.jar
```

```
Solaris32/64 Linux32/64
```

```
-classpath /opt/FJSVisje6/glassfish/modules/jersey-core.jar
```

3.1.11.6 Encoding

The deserialization in this function targets JSON data encoded in UTF-8. Accordingly, the JSON data sent from the client must be UTF-8 data.

Additionally, the serialization encodes the JSON data in UTF-8.

3.1.11.7 Coding Examples

This section contains coding examples in which serialization/deserialization is performed for JAX-RS applications.

- a. Example in which a Java Bean and a JSON object are converted
- b. Example in which the `java.util.Map<String,?>` class and the JSON object are converted

Coding examples for a. and b. above are shown below.



Example

a. Example in which a Java Bean and a JSON object are converted

In this coding example, two resource methods that convert the JSON object and the Java Bean are defined. The query method is called for HTTP GET requests, and the update method is called for HTTP POST requests.

- User class

```
public class User {
    private Integer    userId;
    private String     userName;
    private Integer    age;
    private boolean    administrator;

    public Integer getUserId() {
        return userId;
    }
    public void setUserId(Integer userId) {
        this.userId = userId;
    }

    public String getUserName() {
        return userName;
    }
    public void setUserId(Integer userId) {
        this.userId = userId;
    }
    ...
}
```

- Users class

```
@Path("/user")
public class Users {
    @Path("/{id}")
    @GET
    @Produces("application/json")
    public User query(@PathParam("id")Integer userId) {
        ...
        // Processing to return the User object for the ID specified in userId
    }
}
```

```

    }
    @Path("/{id}")
    @POST
    @Produces("application/json")
    @Consumes("application/json")
    public User update (User updateData,@PathParam("id")Integer userId) {
        ...
        // This process updates the User object for the ID specified in userId
        // with the content of the updateData object, and then returns the updated object
    }
}

```

b. Example in which the java.util.Map<String,?> class is used

In this coding example, a resource method that converts the JSON object and the java.util.Map<String,String> class is defined.

```

@Path("/Map")
public class JsonResource {
    @POST
    @Consumes("application/json")
    @Produces("application/json")
    public Map<String, String> process(Map<String, String> inputData) {
        ...
        //Processing to take the value corresponding to the key from the inputData object and to perform
        the update using that value
    }
}

```

3.2 deployment descriptor

This section explains how the Interstage deployment descriptor is used and provides the content of each deployment descriptor definition file.

deployment descriptor Regulated by the Java EE Specifications

For details on the deployment descriptor that is regulated by the Java EE specifications, refer to the Java EE specifications.

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 "3.2.1 Interstage deployment descriptor".

| Interstage deployment descriptor | Deployment module |
|--|---|
| Interstage application deployment descriptor (glassfish-application.xml) | ear file |
| Interstage Web application deployment descriptor (glassfish-web.xml) | war file |
| Interstage EJB application deployment descriptor (glassfish-ejb-jar.xml) | ejb-jar file |
| Interstage application client deployment descriptor (glassfish-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.



The following files must not be contained in the deployment module:

- context.xml
- sun-application.xml
- sun-web.xml
- sun-ejb-jar.xml
- sun-application-client.xml
- weblogic.xml
- weblogic-application.xml
- weblogic-web.xml
- weblogic-ejb-jar.xml
- weblogic-application-client.xml
- weblogic-ra.xml
- weblogic-webservices.xml

3.2.1 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 |
|----------------------------------|---|
| glassfish-application.xml | Definition of the Java EE application (EAR file) can be specified. |
| glassfish-web.xml | Definition of the Web application (WAR file) can be specified. |
| glassfish-ejb-jar.xml | Definition of the EJB application (EJB JAR file) can be specified. |
| glassfish-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.

3.2.1.1 Interstage application deployment descriptor (glassfish-application.xml)

Description Format

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE glassfish-application PUBLIC
  "-//GlassFish.org//DTD GlassFish Application Server 3.1 Java EE Application 6.0//EN"
  "http://glassfish.org/dtds/glassfish-application_6_0-1.dtd">
<glassfish-application>
  <pass-by-reference>...</pass-by-reference>
  <security-role-mapping>
    <role-name>...</role-name>
    <principal-name>...</principal-name> or
    <group-name>...</group-name>
  </security-role-mapping>
</glassfish-application>
```

List of Tags

The tag list of the Interstage application deployment descriptor is described below. For the description of the list and tag, refer to ["3.2.1.6 Tag and Description of the Interstage deployment descriptor"](#).

| Tag name | Overview |
|--|---|
| glassfish-application | Start and end of the deployment descriptor |
| pass-by-reference? | The method of specifying the above data in the glassfish-application.xml pass-by-reference tag is not supported. Specify the above data in the glassfish-ejb-jar.xml pass-by-reference tag. |
| 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.

3.2.1.2 Interstage Web application deployment descriptor (glassfish-web.xml)

Description Format

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE glassfish-web-app PUBLIC
  "-//GlassFish.org//DTD GlassFish Application Server 3.1 Servlet 3.0//EN"
  "http://glassfish.org/dtds/glassfish-web-app_3_0-1.dtd">
<glassfish-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-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>
    <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>
<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>
</glassfish-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 ["3.2.1.6 Tag and Description of the Interstage deployment descriptor"](#).

| Tag name | Overview |
|--|--|
| glassfish-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-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 |
| 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* | 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.

3.2.1.3 Interstage EJB application deployment descriptor (glassfish-ejb-jar.xml)

Description Format

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE glassfish-ejb-jar PUBLIC
  "-//GlassFish.org//DTD GlassFish Application Server 3.1 EJB 3.1//EN"
  "http://glassfish.org/dtds/glassfish-ejb-jar_3_1-1.dtd">
<glassfish-ejb-jar>
  <security-role-mapping>
    <role-name>...</role-name>
    <principal-name>...</principal-name> or
    <group-name>...</group-name>
  </security-role-mapping>
  <enterprise-beans>
    <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>
      </resource-ref>
      <default-resource-principal>
        <name>...</name>
        <password>...</password>
      </default-resource-principal>
    </ejb>
  </enterprise-beans>
</glassfish-ejb-jar>
```

```

    </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>
<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>
<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>
<message-destination>
  <message-destination-name>...</message-destination-name>
  <jndi-name>...</jndi-name>
</message-destination>
</enterprise-beans>
</glassfish-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 "[3.2.1.6 Tag and Description of the Interstage deployment descriptor](#)".

| Tag name | Overview |
|---|--|
| glassfish-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 in the realm |
| enterprise-beans | Definition of the application define din the EJB JAR file |
| 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 |
| 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 |
| principal? | User name that supports the security role |
| name | User name |

| Tag name | Overview |
|--|--|
| 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 |
| 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 |

| Tag name | Overview |
|--------------------------------------|--|
| 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 |
| 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.

3.2.1.4 Interstage application client deployment descriptor (glassfish-application-client.xml)

Description Format

```

<!DOCTYPE glassfish-application-client PUBLIC
  "-//GlassFish.org//DTD GlassFish Application Server 3.1 Application Client 6.0//EN"
  "http://glassfish.org/dtds/glassfish-application-client_6_0-1.dtd">
<glassfish-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>
</glassfish-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 "[3.2.1.6 Tag and Description of the Interstage deployment descriptor](#)".

| Tag name | Overview |
|--|--|
| glassfish-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 |
| 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 |

3.2.1.5 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>
</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 "3.2.1.6 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 |

3.2.1.6 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, Interstage Java EE 6 DAS service or 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 "[7.7.8 EJB Container Definition Items](#)".

For the cache function, refer to "[6.5.2 Enterprise Bean Instance Caching](#)".

`<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 5400 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 "[7.7.8 EJB Container Definition Items](#)" or "[7.7.9 Message-driven Bean Default Pool Definition Items](#)").

For information regarding the pooling function, refer to "[6.5.3 Enterprise Bean Instance Pooling](#)".

<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.

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 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 : [glassfish-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 " 2.22.3 Changing the Delegation Model of the Web Class Loader ". <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.

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 "[2.15.6 Transaction Monitoring and Freeze Functionality](#)"


.cookie-properties (parent tag :[session-config](#))

Define the common values that control cookies (session Cookie) used for the session trace within the Web application, using the <property> tag.

Note that these items can be set using the web.xml <session-config>-<cookie-config> tags or the Servlet API javax.servlet.SessionCookieConfig from Servlet 3.0. The priority used when multiple values have been defined is as follows:

web.xml < glassfish-web.xml < Servlet API

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. <p>Do not add in the case of http, only in case of https.</p> |
| cookieMaxAgeSeconds | -1 | <p>Specify the period (in seconds) for the saving of session cookie on the Web browser.</p> <ul style="list-style-type: none"> - 1 to 2147483647: This will be the period for the saving of session cookie on the Web browser. In this case, even if the web browser is stopped, the session can continue as long as the server session is valid, even if the web browser is restarted. <p> Note</p> <p>.....</p> <p>If 1 to 2147483647 is specified, note the following:</p> <ul style="list-style-type: none"> - If cookieMaxAgeSeconds is less than the session timeout, the session cookies saved in the web browser will become invalid before the session timeout on the server, so unnecessary sessions may remain on the server. <p>For this reason, set the maximum value for the session timeout in cookieMaxAgeSeconds.</p> <ul style="list-style-type: none"> - The session can continue even if the web browser is restarted, therefore, in operating environments where requests are made from a web browser on a common terminal, there may be a risk that the session information will be shared between users. Exercise sufficient caution. <p>.....</p> <ul style="list-style-type: none"> - 0: Session tracking using cookies will be disabled. - Other: Session cookie on the Web browser will not be saved. In this case, the session will not continue if the web browser is stopped. |
| cookieHttpOnly | true | <p>Specify whether to add the HttpOnly attribute to the session cookie.</p> <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](#))

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.

Note

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-ref (parent tag :[glassfish-web-app_ejb_glassfish-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 "2.14 JNDI" for an explanation on how to make the above definitions.

enterprise-beans (parent tag :[glassfish-ejb-jar](#))

Definition on the application defined in the EJB JAR file.

ior-security-config (parent tag:[ejb](#))

Set the integrity and confidentiality of IIOP 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.

jms-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 : [glassfish-web-app](#))

Define the common value that controls JSP within the Web application using the <property> tag. The specifiable properties are shown below. For details on JSP auto reload, refer to "[2.6.2.1 JSP Auto Reload](#)".

| Property name | Default value | Meaning |
|---------------|---------------|---|
| enablePooling | true | Specify if the tag pooling is used. - true: Use. - false: Not to use. |
| keepgenerated | false | Specify if the Java source code is generated when JSP is compiled. For details on the output destinations, refer to " B.1 Interstage Java EE 6 DAS Service File Configuration " and " B.2 IJServer Cluster File Configuration ". - true: Generate - false: Do not generate |
| development | false | Specify whether to perform JSP auto reload for each request separately. - true: Perform the auto reload. - false: Do not perform the auto reload. |
| checkInterval | 0 | Specify the interval (in seconds) for performing JSP auto reload for each fixed interval that JSP is updated. If false is set for "development" and a value greater than 0 is specified, JSP auto reload will be enabled for each fixed interval. - 1 to 2147483647: JSP updates are checked at the specified interval (in seconds). - 0: JSP auto reload for each fixed interval is not performed. |

log-service (parent tag: [client-container](#))

Specify the log output level.
This shows the specifiable attributes.

| Attributes 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 "[5.8.3 Authentication Method for Using JMS from an Application](#)".

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.

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.

message-destination (parent tag : [glassfish-web-app_enterprise-beans_glassfish-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.



See

Refer to "[2.14 JNDI](#)" for an explanation of how to make the above definitions.

message-destination-ref (parent tag :[glassfish-web-app_ejb_glassfish-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 "[2.14 JNDI](#)" for an explanation of how to make the above definitions.

parameter-encoding (parent tag :[glassfish-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. Note that this can also be set in the Servlet API. For details, refer to " 2.6.3 Character Encoding ". |

pass-by-reference (parent tag:[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. Specify true or false. If you specify any other value, false will be implied. 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 glassfish-application.xml pass-by-reference tag is not supported.
To use this function, specify the above data in the glassfish-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 :[glassfish-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. |
| value | - | Specify the property value. |

| Property name | Default value | Meaning |
|---------------|---------------|------------------------------------|
| description | - | Describe the property description. |

resource-env-ref (parent tag :[glassfish-web-app_ejb_glassfish-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 Interstage Java EE 6 DAS service 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 "[2.14 JNDI](#)" for an explanation of how to make the above definitions.

resource-ref (parent tag :[glassfish-web-app_ejb_glassfish-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 "2.14 JNDI" for an explanation of how to make the above definitions.

security-role-mapping (parent tag :[glassfish-web-app](#),[_glassfish-ejb-jar](#))

Map the security role defined in the Java EE deployment descriptor to the user or group defined in the realm.
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.



Note

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 : [glassfish-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 :[glassfish-web-app](#))

Define the common value that controls the session within the Web application.

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: To set- false: Not set |

glassfish-application

Define the start and end of the Interstage application deployment descriptor.

glassfish-application-client

Define the start and end of the Interstage application client deployment descriptor.

glassfish-ejb-jar

Define the start and end of the Interstage EJB application deployment descriptor.

glassfish-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 |
|----------------------|---------------------|---|
| crossContext Allowed | true | Specify if the dispatch to another Web application is authorized. <ul style="list-style-type: none">- true: Authorized- false: Not authorized |
| fileEncoding | OS default encoding | Specify the encoding used to process the static resource if dispatched to the static resource from servlet and JSP. |

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. |

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.



See

For the thread pool function, refer to "[6.5.1 Thread Pooling](#)".

3.3 Application Debugging

Application debugging can be performed using 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-responsive.

Debugging using the Java method trace function

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 "[4.17 Java EE Application Logs](#)".

3.3.2 Debugging Using the Debugger

This debugging method uses the debugger provided with Interstage Studio.

When the debugger is used, the logical processing error 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 in the program source.

For more information about debugging using the Interstage Studio debugger, refer to the Interstage Studio User's Guide.

3.3.3 Debugging Using the Thread Stamp

This is the method to debug the application using the thread stamp.

For details on the thread dump output function, refer to the following:

- "[2.5.3 Monitoring the Maximum Application Processing Time](#)"
- "[2.5.4 Process Start Time Monitoring/Stop Time Monitoring](#)"

3.3.4 Debugging Using the Java Method Trace Function

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 "[7.7.14 Java VM Definition Items](#)".

To specify escape characters when using the JVM option, refer to "[Using escape characters](#)".

Chapter 4 Java EE Application Operation

This chapter explains the Java EE application operation method.

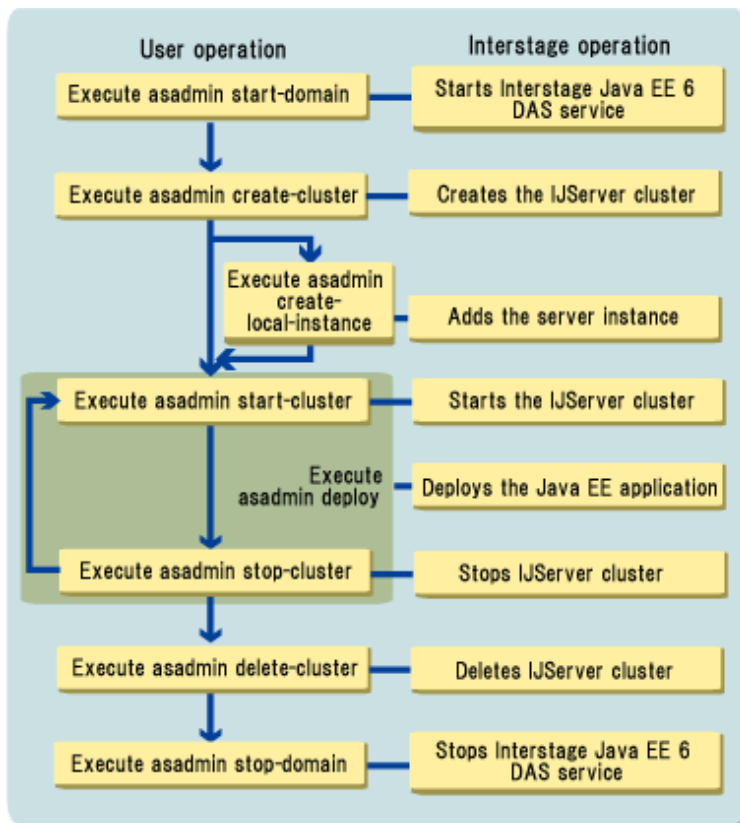
4.1 Operations Using Commands

In the Java EE 6 runtime environment, multiple commands, starting with the asadmin command, are provided. Java EE 6 operations and definition changes can be executed using these commands.

For details on the operation for each command, refer to "Chapter 9 Java EE 6 Operation Commands".

Java EE application operations are performed according to the flow shown below.

The PCMI service must already be running. For details on starting and stopping the PCMI service, refer to "4.2.2 Starting", "4.2.3 Stopping", and "4.2.5 Automatically Starting/Stopping the Service".



4.2 PCMI Service Operations

This section explains the PCMI service operations.

4.2.1 Interstage Java EE 6 Installation and PCMI Service

When Interstage Java EE 6 is installed, the PCMI service functions can be used.

Windows32/64

When Interstage Java EE 6 is installed, the PCMI service is registered as a Windows(R) service.

| | |
|--------------|------------------------|
| Service name | Interstage PCMI(isje6) |
|--------------|------------------------|

| | |
|-------------|-------------------------------------|
| Description | Provides PCMI service of Interstage |
|-------------|-------------------------------------|

When Interstage Java EE 6 is uninstalled, the above service is deleted from Windows(R) services.

4.2.2 Starting

The following methods start the PCMI service:

- Start by Using the Windows(R) Services Window [Windows32/64](#)
- Start by Using the net Service Command [Windows32/64](#)
- Start by Using the RC Script [Solaris32/64](#) [Linux32/64](#)
- Automatic Startup when Machine Starts



The default timeout for the PCMI service to start is 20 minutes. For details on settings, refer to "7.1 PCMI Service Definition Items".

Start by Using the Windows(R) Services Window [Windows32/64](#)

Start by using the following procedure:

1. Open [Control Panel] > [Services] or [Control Panel] > [Administrative Tools] > [Services].
2. Select [Interstage PCMI(isje6)], and start the service.

Start by Using the net Service Command [Windows32/64](#)

Specify the service name, and execute the net service command to start the PCMI service.

```
net start "Interstage PCMI(isje6)"
```

Start by Using the RC Script [Solaris32/64](#) [Linux32/64](#)

Execute the RC script to start the PCMI service. The RC script is stored in the PCMI instance directory.

```
[PCMI instance directory]/FJSVpcmi start
```

Automatic Startup when Machine Starts

Immediately after Interstage Java EE 6 installation, the PCMI service is configured to start automatically when the machine starts.

[Windows32/64](#)

Started automatically from Windows(R) services.

[Solaris32/64](#) [Linux32/64](#)

Started automatically by the RC procedure.

For details on automatically starting during machine startup, refer to "4.2.5 Automatically Starting/Stopping the Service".

4.2.3 Stopping

The following methods stop the PCMI service:

- Stop by Using the Windows (R) Services Window [Windows32/64](#)
- Stop by Using the net Service Command [Windows32/64](#)
- Stop by Using the RC Script [Solaris32/64](#) [Linux32/64](#)
- Automatic Stop when Machine Reboots or Shutdown



Note

The default timeout for the PCMI service to stop is 3 minutes. For details on settings, refer to "[7.1 PCMI Service Definition Items](#)".

Stop by Using the Windows (R) Services Window [Windows32/64](#)

Stop by using the following procedure:

1. Open [Control Panel] > [Services] or [Control Panel] > [Administrative Tools] > [Services].
2. Select [Interstage PCMI(isje6)], and stop the service.

Stop by Using the net Service Command [Windows32/64](#)

Specify the service name, and execute the net service command to stop the PCMI service.

```
net stop "Interstage PCMI(isje6)"
```

Stop by Using the RC Script [Solaris32/64](#) [Linux32/64](#)

Execute the RC Script to stop the PCMI service. The RC script is stored in the PCMI instance directory.

```
<PCMI instance directory>/FJSVpcmi stop
```

Automatic Stop when Machine Reboots or Shutdown

Immediately after Interstage Java EE 6 installation, the PCMI service is configured to stop automatically when the machine reboots or shuts down.

[Windows32/64](#)

As it is registered as a Windows (R) service, during machine reboot or shutdown, the service shuts down after a stop request is generated by the operating system.

[Solaris32/64](#) [Linux32/64](#)

Stopped automatically by the RC procedure.

For details on automatically stopping during machine reboot or shutdown, refer to "[4.2.5 Automatically Starting/Stopping the Service](#)".

4.2.4 Obtaining Status Information

Information on the startup status of the PCMI service can be obtained by using the pcmistat command.

For details on the pcmistat command, refer to "[9.12 pcmistat](#)".

4.2.5 Automatically Starting/Stopping the Service

Immediately after installation, the PCMI service is configured to start automatically when the machine starts. Also, it is configured to stop automatically when the machine reboots or shuts down.

To change the PCMI service to operate without automatically starting and stopping, disable the automatic start or automatic stop settings using the following procedure.

Windows32/64

1. Open [Control Panel] > [Services] or [Control Panel] > [Administrative Tools] > [Services].
2. Select [Interstage PCMI(isje6)], and change [Startup Type] to [Manual].

To again enable the automatic start or automatic stop settings, change [Startup Type] to [Automatic].

Solaris32/64

Execute the following commands:

```
rm /etc/rc0.d/K00FJSVpcmiisje6
rm /etc/rc2.d/S99FJSVpcmiisje6
```

To again configure the settings to perform automatic start or automatic stop, reregister the deleted RC script.

Execute the following commands to create symbolic links for /etc/rc0.d and /etc/rc2.d, respectively.

```
ln -s [Java EE 6 common directory]/pcmi/isje6/FJSVpcmi /etc/rc0.d/K00FJSVpcmiisje6
ln -s [Java EE 6 common directory]/pcmi/isje6/FJSVpcmi /etc/rc2.d/S99FJSVpcmiisje6
```

Linux32/64

Execute the following command:

```
/sbin/chkconfig --del FJSVpcmiisje6
```

To again configure the settings to perform automatic start or automatic stop, reregister the deleted script.

Execute the following command to configure the system service.

```
/sbin/chkconfig --add FJSVpcmiisje6
```

4.2.6 Exit Function during Service Startup/Stop

You can execute scripts when starting or stopping the PCMI service.

By specifying the Interstage Java EE 6 DAS service or the server instance startup command in a script, you can start the Interstage Java EE 6 DAS service or the server instance at the same time as the PCMI service.

Also, by specifying the Interstage Java EE 6 DAS service or the server instance stop command in a script, you can stop the Interstage Java EE 6 DAS service or the server instance at the same time as the PCMI service.

To use the exit function when starting or stopping the service, create an exit function definition file or a script file for when the service starts or stops.

4.2.6.1 Exit Function Definition File

Create an exit function definition file for when the service starts or stops, and store it in the following directories.

File Name

gf3.properties

Storage Location


Windows32/64

```
[Java EE 6 common directory]\pcmi\isje6\adapter
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/pcmi/isje6/adapter
```

Definition Content

| Parameters | Value | Description |
|----------------------------------|-------------------|---|
| adapter.gf3.start | File name | Specify the startup script |
| adapter.gf3.stop | File name | Specify the stop script |
| adapter.gf3.start.ignore-failure | - true - false | <p>Specifies the action when the startup script is executed and the return value is a value other than "0".</p> <ul style="list-style-type: none"> - true Even if the startup script ends abnormally, the PCMI service startup process continues. - false/unspecified If the startup script ends abnormally, the PCMI service startup process ends abnormally. <p> Note</p> <p>.....</p> <p>If the startup script is not executed for some reason, such as access permissions, the settings of this parameter are disabled and the PCMI service startup process ends abnormally.</p> <p>.....</p> |

If the number sign (#) is specified at the beginning of a line, the line is treated as a comment.

Note

- Regardless of the processing results of the stop script, there are no parameters to be specified in the stop script to continue the PCMI service stop process.
 - If the Interstage Java EE 6 DAS service or the server instance stop command is not specified in the stop script, the Interstage Java EE 6 DAS service or the server instance will be forcibly collected when the PCMI service stops.
-

Example

Windows32/64

```
adapter.gf3.start = start.bat
adapter.gf3.stop = stop.bat
adapter.gf3.start.ignore-failure = false
```

Solaris32/64 Linux32/64

```
adapter.gf3.start = start.sh
adapter.gf3.stop = stop.sh
adapter.gf3.start.ignore-failure = false
```

4.2.6.2 Script Files Executed in Exit Functions

Create service startup and stop scripts to be executed with exit functions, and store them in the directories below. The startup and stop scripts are specified in the PCMI service startup and stop exit function definition file.

Storage Location

Windows32/64

```
[Java EE 6 common directory]\pcmi\isje6\adapter
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/pcmi/isje6/adapter
```

Content of Script Files

Specify the Interstage Java EE 6 DAS service or the IJServer cluster startup command in the startup script.

Specify the Interstage Java EE 6 DAS service or the server instance stop command in the stop script.



Note

- Specify the command with a full path.
- Ensure that "0" is returned when shutdown is normal.
- The PCMI service always collects the process of the Interstage Java EE 6 DAS service or the server instance that has not stopped when the stop script ends.
- When specifying the start of an IJServer cluster in a startup script, specify the start in the following order:
 1. Start of the Interstage Java EE 6 DAS service
 2. Start of the IJServer cluster
- When specifying the stop of the IJServer cluster in a stop script, specify the stop in the following order:
 1. Stop of the IJServer cluster
 2. Stop of the Interstage Java EE 6 DAS service
- **Windows32/64**
Specify the --user and --passwordfile options for the asadmin command. For details on the asadmin command, refer to "[9.1.2 asadmin Command Common Options](#)".

Example of Startup Script

Windows32/64

```

@echo off

rem DAS service start
call C:\Interstage\F3FMisje6\glassfish\bin\asadmin start-domain
if %ERRORLEVEL% neq 0 exit /B 1

rem IJServer cluster start
call C:\Interstage\F3FMisje6\glassfish\bin\asadmin --user admin --passwordfile C:\password.txt start-
cluster IJServer001
if %ERRORLEVEL% neq 0 exit /B 1

call C:\Interstage\F3FMisje6\glassfish\bin\asadmin --user admin --passwordfile C:\password.txt start-
cluster IJServer002
if %ERRORLEVEL% neq 0 exit /B 1

exit /B 0

```

Solaris32/64 Linux32/64

```

#!/bin/sh

# DAS service start
/opt/FJSVisje6/glassfish/bin/asadmin start-domain
if [ "$?" != "0" ]
then
    exit 1
fi

# IJServer cluster start
/opt/FJSVisje6/glassfish/bin/asadmin start-cluster IJServer001
if [ "$?" != "0" ]
then
    exit 1
fi

/opt/FJSVisje6/glassfish/bin/asadmin start-cluster IJServer002
if [ "$?" != "0" ]
then
    exit 1
fi

exit 0

```

Example of Stop Script

Windows32/64

```

@echo off

rem IJServer cluster stop
call C:\Interstage\F3FMisje6\glassfish\bin\asadmin stop-local-instance IJServer001-1
if %ERRORLEVEL% neq 0 exit /B 1

call C:\Interstage\F3FMisje6\glassfish\bin\asadmin stop-local-instance IJServer001-2
if %ERRORLEVEL% neq 0 exit /B 1

call C:\Interstage\F3FMisje6\glassfish\bin\asadmin stop-local-instance IJServer002-1
if %ERRORLEVEL% neq 0 exit /B 1

rem DAS service stop

```

```
call C:\Interstage\F3FMisje6\glassfish\bin\asadmin stop-domain
if %ERRORLEVEL% neq 0 exit /B 1

exit /B 0
```

Solaris32/64 **Linux32/64**

```
#!/bin/sh

# IJServer cluster stop
/opt/FJSVisje6/glassfish/bin/asadmin stop-local-instance IJServer001-1
if [ "$?" != "0" ]
then
    exit 1
fi

/opt/FJSVisje6/glassfish/bin/asadmin stop-local-instance IJServer001-2
if [ "$?" != "0" ]
then
    exit 1
fi

/opt/FJSVisje6/glassfish/bin/asadmin stop-local-instance IJServer002-1
if [ "$?" != "0" ]
then
    exit 1
fi

# DAS service stop
/opt/FJSVisje6/glassfish/bin/asadmin stop-domain
if [ "$?" != "0" ]
then
    exit 1
fi
exit 0
```

4.2.7 Changing the Settings

To change the settings of timeout values, monitoring details, or operations during error detection for the PCMI service, specify them in the PCMI service operation definition file or the PCMI profile.



See

- For details on the PCMI service definition items, refer to "[7.1 PCMI Service Definition Items](#)".
- For details on how to create and modify the PCMI service operation definition files and PCMI profiles, refer to "[6.2 PCMI Service Tuning](#)".

4.3 Interstage Java EE 6 DAS Service Operations

This section explains the Interstage Java EE 6 DAS service operations.

4.3.1 Operations

Use the asadmin command for the Interstage Java EE 6 DAS service operations.
For details on these operations, refer to the following:

- ["9.1.6.1 start-domain Subcommand"](#)
- ["9.1.6.3 stop-domain Subcommand"](#)

4.3.2 Changing the Settings

Use the `asadmin` command to change the Interstage Java EE 6 DAS service settings. For details on these operations, refer to the following:

- Explanation of each subcommand in ["9.1 asadmin"](#)

4.3.3 Environment Variable Settings

Specify the environment variables for the PCMI profile definition items, or the command prompt on which you are to run the `start-domain` subcommand, and then restart the Interstage Java EE 6 DAS service. For details on the environment variables for the PCMI profile definition items, refer to ["Environment Variables"](#).

4.3.4 Deploying the Application

To deploy an application to the Interstage Java EE 6 DAS service, use the `asadmin` command `deploy` subcommand.

At this time, specify the Interstage Java EE 6 DAS service instance name `"server"` for the target.

For details on the deployment of applications, refer to ["4.5 Deploying Applications"](#).

4.3.5 Creating Resources

To create the resources in the Interstage Java EE 6 DAS service, use the `asadmin` command resource-related subcommands.

4.3.6 Automatically Starting/Stopping the Service

By using the `exit` function when the PCMI service starts or stops, the Interstage Java EE 6 DAS service can be started or stopped automatically. For details, refer to ["4.2.6 Exit Function during Service Startup/Stop"](#).

4.4 IJServer Cluster Operations

This section explains the IJServer cluster operations.

4.4.1 Creating/Deleting an IJServer Cluster

Use the `asadmin` command to create or delete an IJServer cluster. For details, refer to the following:

- ["9.1.7.1 create-cluster Subcommand"](#)
- ["9.1.7.2 delete-cluster Subcommand"](#)

Messages

When the create or delete operation for an IJServer cluster completes normally, the following messages are output to the system log or the event log.

| Operation | Message |
|------------------------------|---------|
| Creating an IJServer cluster | OM2005 |
| Deleting an IJServer cluster | OM2006 |

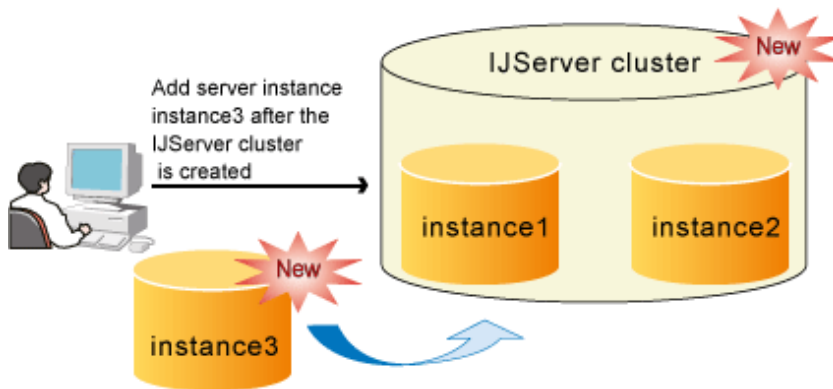
For details on the messages, refer to ["10.30 Messages that Contain "OM" in the Message ID"](#).

4.4.2 Adding/Deleting a Server Instance

This section explains how to add a server instance to an IJServer cluster, which is a prerequisite for running applications in it.

Adding a Server Instance

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 "[9.1.7.6 create-local-instance Subcommand](#)".



Automatic Assignment of Port Numbers

When a server instance is added, if the port number defined in the settings is being used by another instance, then a new port number is automatically assigned (**Note**) and the system property is added to the server instance definition. For details on system property names and the logic for assigning port numbers, refer to "[7.7.1 Properties Used when Creating and Updating Definitions](#)".

- "[9.1.7.1 create-cluster Subcommand](#)"
- "[9.1.7.6 create-local-instance Subcommand](#)"

Note) If the server instance port number is, for example, the HTTP listener port number, it will be assigned automatically if the "**Port number**" in "[Network Configuration Definition Items](#)" is predefined as a system property, as in the case "`#{HTTP_LISTENER_PORT}`".

Deleting a Server Instance

IJServer cluster server instances can be deleted individually.

This operation can be performed while the IJServer cluster is running, but the target server instance for deletion must be stopped before it can be deleted.

If all server instances under an IJServer cluster are deleted, the IJServer cluster cannot be started.

For details on these operations, refer to the following:

- "[9.1.7.7 delete-local-instance Subcommand](#)"

Messages

When the create or delete operation for a server instance completes normally, the following messages are output to the system log or the event log.

| Operation | Message |
|----------------------------|---------|
| Creating a server instance | OM2017 |
| Deleting a server instance | OM2018 |

For details on the messages, refer to "[10.30 Messages that Contain "OM" in the Message ID](#)".

4.4.3 Starting/Stopping/Displaying the Operational Status of an IJServer Cluster

Use the `asadmin` command to start or stop an IJServer cluster.

For details, refer to the following:

- ["9.1.7.3 start-cluster Subcommand"](#)
- ["9.1.7.4 stop-cluster Subcommand"](#)

IJServer Cluster Monitoring

The PCMI service starts server instance monitoring when an IJServer cluster starts, and ends monitoring when the IJServer cluster stops.

For details on the monitoring content and the default values, refer to ["7.1 PCMI Service Definition Items"](#).

For details on how to change the content configured for monitoring, refer to ["6.2 PCMI Service Tuning"](#).

Use the [9.13 `pcmilistprocesses`](#) command to check the operational status of an IJServer cluster server instance.

Messages

When the start or stop operation for an IJServer cluster completes normally, the following messages are output to the system log or the event log.

| Operation | Message |
|--|---------|
| Starting an IJServer cluster | OM1015 |
| Stopping an IJServer cluster (normal stop) | OM1016 |
| Stopping an IJServer cluster (forced stop) | OM1017 |

For details on the messages, refer to ["10.30 Messages that Contain "OM" in the Message ID"](#).

4.4.4 Starting/Stopping/Displaying the Operational Status of a Server Instance

Use the `asadmin` command to start or stop a server instance.

For details, refer to the following:

- ["9.1.7.8 start-local-instance Subcommand"](#)
- ["9.1.7.9 stop-local-instance Subcommand"](#)

Server Instance Monitoring

The PCMI service starts server instance monitoring when a server instance starts, and ends monitoring when the server instance stops.

For details on the monitoring content and the default values, refer to ["7.1 PCMI Service Definition Items"](#).

For details on how to change the content configured for monitoring, refer to ["6.2 PCMI Service Tuning"](#).

Use the [9.13 `pcmilistprocesses`](#) command to check the operational status of a server instance.

Normal Stop and Forced Stop

The IJServer cluster can be stopped by using either of the two methods: normal stop or forced stop.

Forced stop has the following characteristics:

- There is no wait until the application terminates. Applications that have been called from the client are also stopped without waiting for the processing to complete.
- There is no lifecycle module stop processing.
- There is no processing to unbind connections pooled in each resource connection pool.

As there is no recovery processing in forced stop, any remaining resources that were not recovered should be recovered individually. The same applies to when a 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 start or stop operation for a server instance completes normally, the following messages are output to the system log or the event log.

| Operation | Message |
|--|---------|
| Starting a server instance | OM1044 |
| Stopping a server instance (normal stop) | OM1045 |
| Stopping a server instance (forced stop) | OM1046 |

For details on the messages, refer to "[10.30 Messages that Contain "OM" in the Message ID](#)".

4.4.5 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 is recovered so that it is "running" again.

Use the `asadmin` command to recover a server instance.

For details, refer to the following:

- "[9.1.7.3 start-cluster Subcommand](#)"
- "[9.1.7.8 start-local-instance Subcommand](#)"

Messages

When the recovery operation for an IJServer cluster completes normally, the following messages are output to the system log or the event log.

| Operation | Message |
|--|---------|
| Recovery by starting an IJServer cluster | OM1015 |
| Recovery by starting a server instance | OM1044 |

For details on the messages, refer to "[10.30 Messages that Contain "OM" in the Message ID](#)".

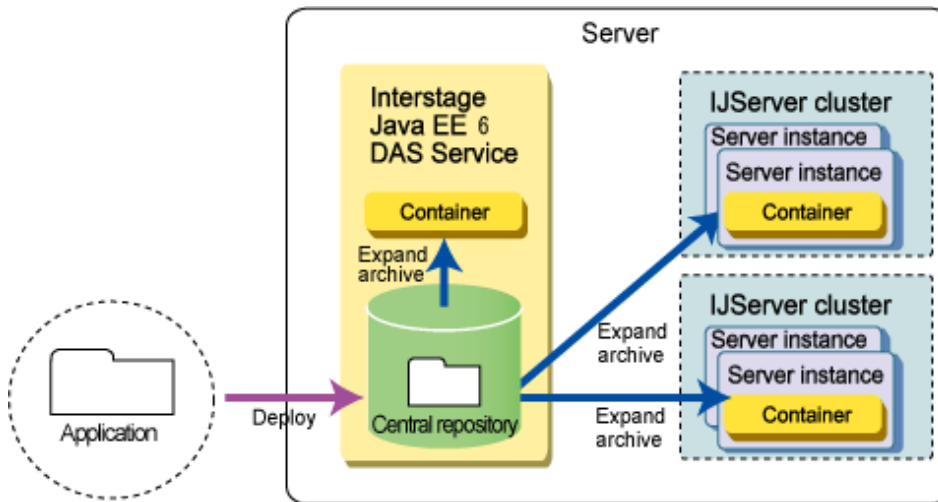
4.5 Deploying Applications

This section explains how to deploy applications.

4.5.1 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. The applications are executed on the IJServer cluster or the server instance that has been specified as the target.

The Interstage Java EE 6 DAS service or an IJServer cluster can be selected for the target.



Note

- 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 details on placement of JAR files, refer to "2.22.1 Class Loader Configuration".
- Multiple deploy or undeploy operations cannot be executed at the same time. If a new deployment or undeployment operation is submitted before the current deployment or undeployment operation returns, the new operation will wait for the completion of the current operation.
- 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.

4.5.2 Procedure for Deploying Applications

To deploy Java EE applications, use the `asadmin` command `deploy` subcommand.

The following example shows how to deploy a Java EE application named "Sample".

Example

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin deploy --name Sample --target IJServer001 sample.ear
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin deploy --name Sample --target IJServer001 sample.ear
```

If there are problems with the deployed application, messages will be output and processing will be interrupted.

For details on the deploy subcommand, refer to "[9.1.9.1 deploy Subcommand](#)".

4.5.3 Procedure for Undeploying Applications

To undeploy Java EE applications, use the asadmin command undeploy subcommand.

The following example shows how to undeploy a Java EE application named "Sample".

Example

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin undeploy --target IJServer001 Sample
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin undeploy --target IJServer001 Sample
```

For details on the undeploy subcommand, refer to "[9.1.9.3 undeploy Subcommand](#)".

4.5.4 Displaying a List of Deployed Applications

It is possible to display the Java EE applications that have already been deployed to Java EE 6.

- Use and refer to the following asadmin command subcommands:
 - "[9.1.8.1 show-component-status Subcommand](#)"
 - "[9.1.8.2 list-components Subcommand](#)"
 - "[9.1.8.3 list-sub-components Subcommand](#)"

For details on the asadmin command, refer to "[9.1 asadmin](#)".

4.5.5 Setting the Environment for Applications that have Already been Deployed

Predeployed Java EE applications can be configured and referenced using the asadmin command set/get subcommand.

For details, refer to "[7.4 Application-related Definition Items](#)".

4.5.6 Changing the Activity State of Applications

By changing the activity state of an application to 'disabled', the application state changes to 'inactive'. This will stop the application from receiving requests.

- 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.

Changing the Activity State of Applications

The activity state of an application can be changed by using the asadmin command enable and disable subcommands.

Example

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin enable --target IJServer001 Sample
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin enable --target IJServer001 Sample
```

- Refer to the following asadmin command subcommands:

- "9.1.9.4 enable Subcommand"
- "9.1.9.5 disable Subcommand"

Note

The activity state of deployed applications is inherited before and after the service is restarted, but the state is always set to "true" after an application is redeployed.

4.5.7 Redeploying Applications

Applications that have been deployed can be updated for each deployment module.

Use the asadmin command deploy subcommand to update the application while still inheriting the following settings for the application that has been deployed.

- deploy subcommand
 - The libraries to which the application refers (JAR files)
 - context-root

If an application is redeployed, the activity state of the deployed application will always be set to "true".

Example

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin deploy --force=true --name Sample --target IJServer001 sample.ear
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin deploy --force=true --name Sample sample.ear
```

For details on the deploy subcommand, refer to "9.1.9.1 deploy Subcommand".

Note

If the --contextroot option is specified when an application is redeployed, or the module in which the context-root defined in application.xml is changed is redeployed, context-root will be updated.

For other important notes about application deployment, refer to "1.3.1 Notes About Deployment".

Modules can be redeployed without stopping the IJServer cluster, but if an application is swapped out during business operations, inconsistencies with the class file or some other problem may occur.

Either stop the IJServer cluster, or redeploy the module when there are no requests to the business application, for example, at night. If there is a problem with the deployment module, messages will be output and processing will be interrupted.

4.6 Operation Configurations for Accessing Applications

This section explains the operation configurations for accessing 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 purpose

- Whether the application will be used in operations

Operation configurations determined by differences in communication paths

- Whether communications pass through a web server

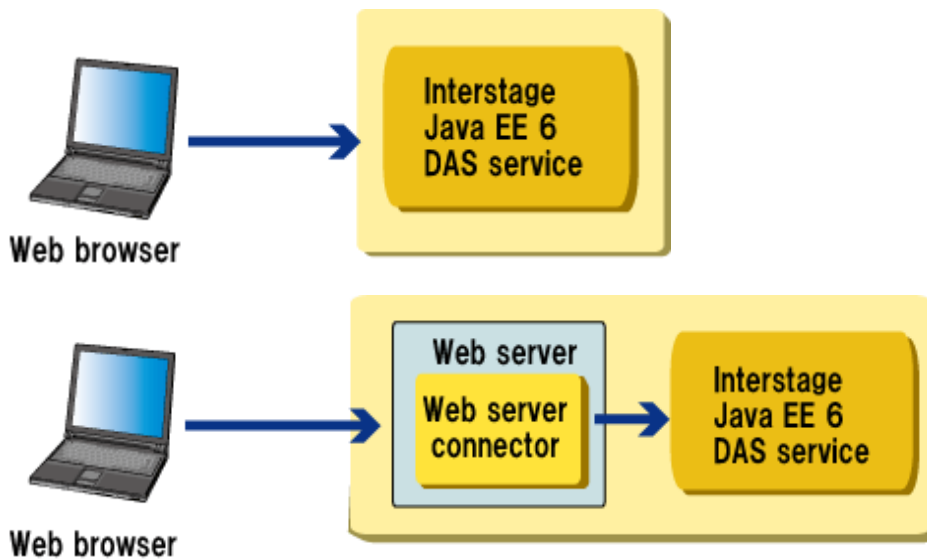
Operation configurations determined by differences in the number of concurrent processes

- Whether the operation will use concurrent processes
- Whether the operation will be performed on multiple machines

4.6.1 Operation Configurations Determined by Differences in Purpose

Operations using the Interstage Java EE 6 DAS service

Select this operation configuration for development environments.



This operation configuration is used to develop applications. The Interstage Java EE 6 DAS service exists immediately after installation, so the application behavior can be checked without creating an IJServer cluster. However, on the Interstage Java EE 6 DAS service, job operations cannot be used in a production environment.

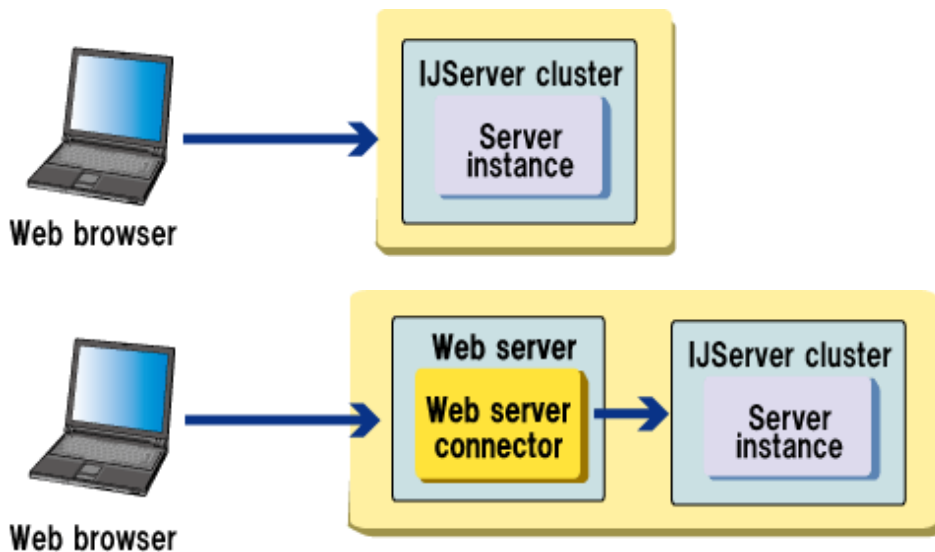
The port numbers to access an application, which has been deployed to the Interstage Java EE 6 DAS service, from a web browser are as follows (when direct access is used):

- HTTP listener: 28282
- HTTPS listener: 28383

Change the port number for the HTTP (HTTPS) listener if necessary.

Note that the Interstage Java EE 6 DAS service will not be linked to the web server in the state that exists immediately after the installation. For details on how to link the service with the web server, refer to "4.7 Preparations for Operations Performed via a Web Server".

Operations using an IJServer cluster



This operation configuration is used to operate applications for businesses.

An IJServer cluster does not exist immediately after installation, therefore a new IJServer cluster must be created.

4.6.2 Operation Configurations Determined by Differences in Communication Paths

This section explains the operation configurations determined by differences in communication paths.

When an application deployed to an IJServer cluster or the Interstage Java EE 6 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](#)
- [Operations where communications pass through a web server](#)

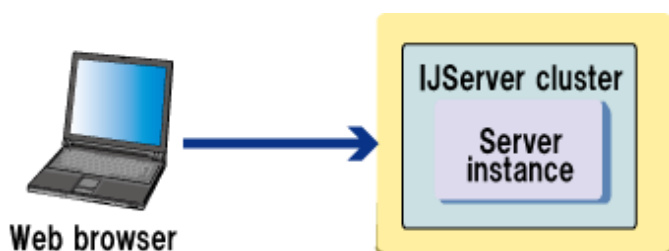
Note

Refer to the following sections, and then configure the various settings according to whether or not the operation configuration uses a web server:

- ["4.7 Preparations for Operations Performed via a Web Server"](#)
- ["4.8 Preparations for Operations Not Performed via a Web Server"](#)

Operations where communications do not pass through a web server

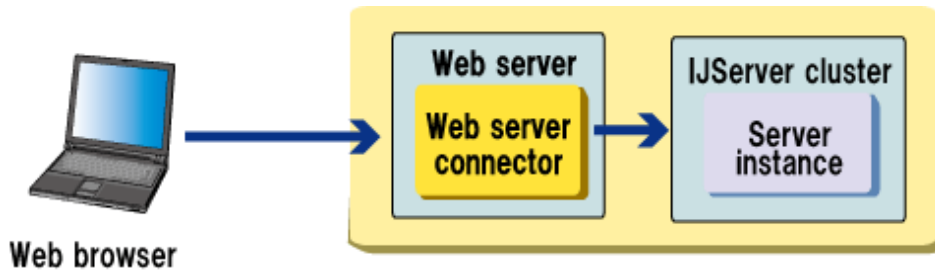
In this operation configuration, clients (such as web browsers) access the web container either directly or via a load balancer.



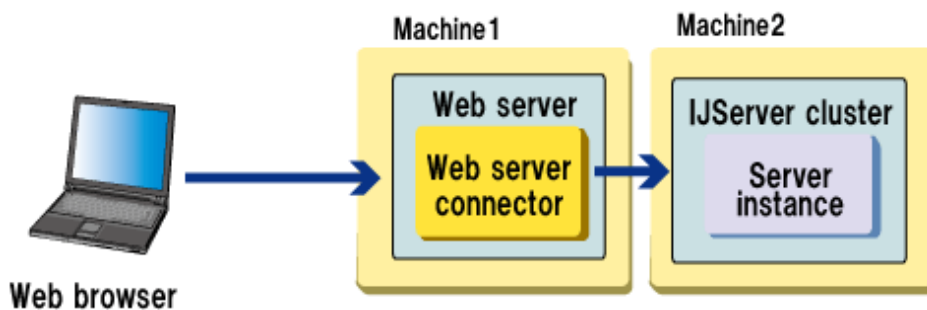
Operations where communications pass through a web server

In this 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.



As shown below, the web server can be placed on another machine. By placing only the web server in a DMZ, the machine on which the IJServer cluster runs can be placed in a secure internal network.



4.6.3 Operation Configurations Determined by Differences in the Number of Concurrent Processes

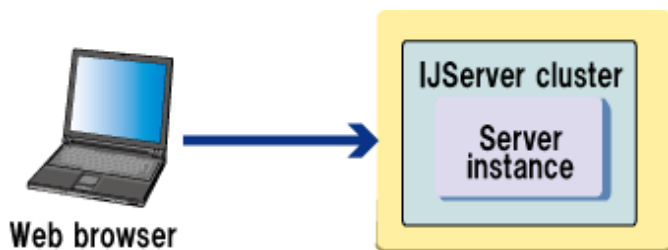
This section explains the operation configurations determined by differences in the number of processes.

4.6.3.1 Operations Involving a Single Process

Select this operation configuration for development environments, or for small-scale systems with a single job.

Operations where communications do not pass through a web server

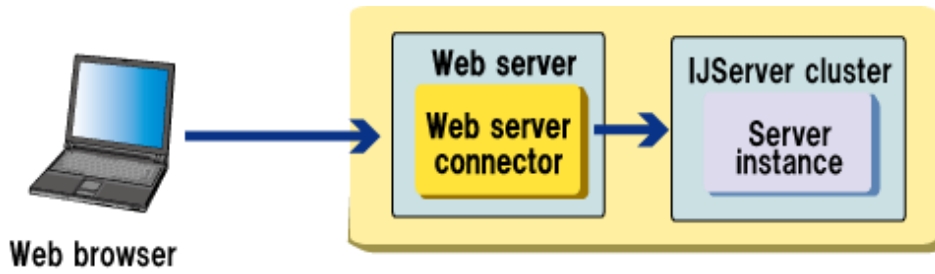
Select this operation configuration if there is no need to use functions specific to the web server.



The port number to access web applications, which have been deployed on an IJServer cluster, from a web browser is a sequential number starting from 28292, not 80. Change the port number for the HTTP listener or the HTTPS listener if necessary.

Operations where communications pass through a web server

Select this operation configuration to use functions specific to the web server.



4.6.3.2 Operations based on Concurrent Processes on a Single Machine

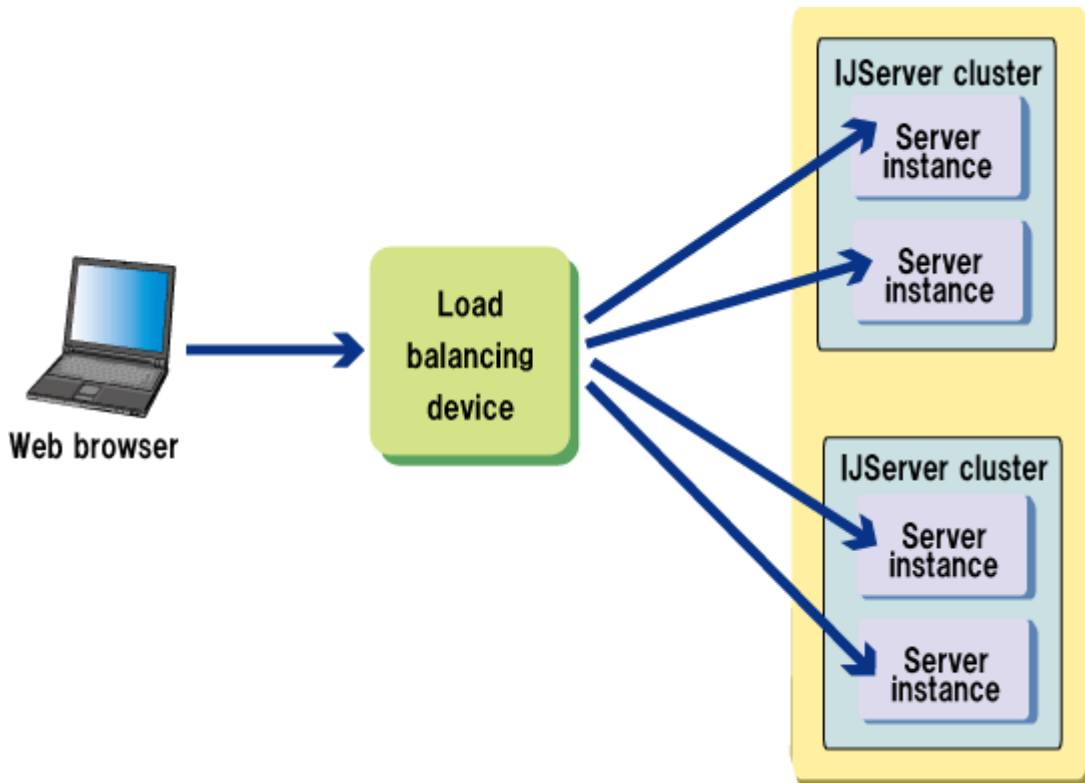
Select this operation configuration for small-scale systems with multiple jobs.

Operations based on concurrent processes are divided into two categories: one where multiple server instances are created in a single IJServer cluster, and the other where multiple IJServer clusters are created.

For details on concurrent processes, refer to "[2.4.2 IJServer Cluster Multiple Process Configurations](#)".

Operations where communications do not pass through a web server

If this type of operation configuration is used, requests from the web browser will be dispatched to each process regardless of the fact that they are concurrent processes from the web browser. For this reason, a load balancer 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. Additionally, if there is no load balancer, the port number for each process must be specified when web browsers access the application.



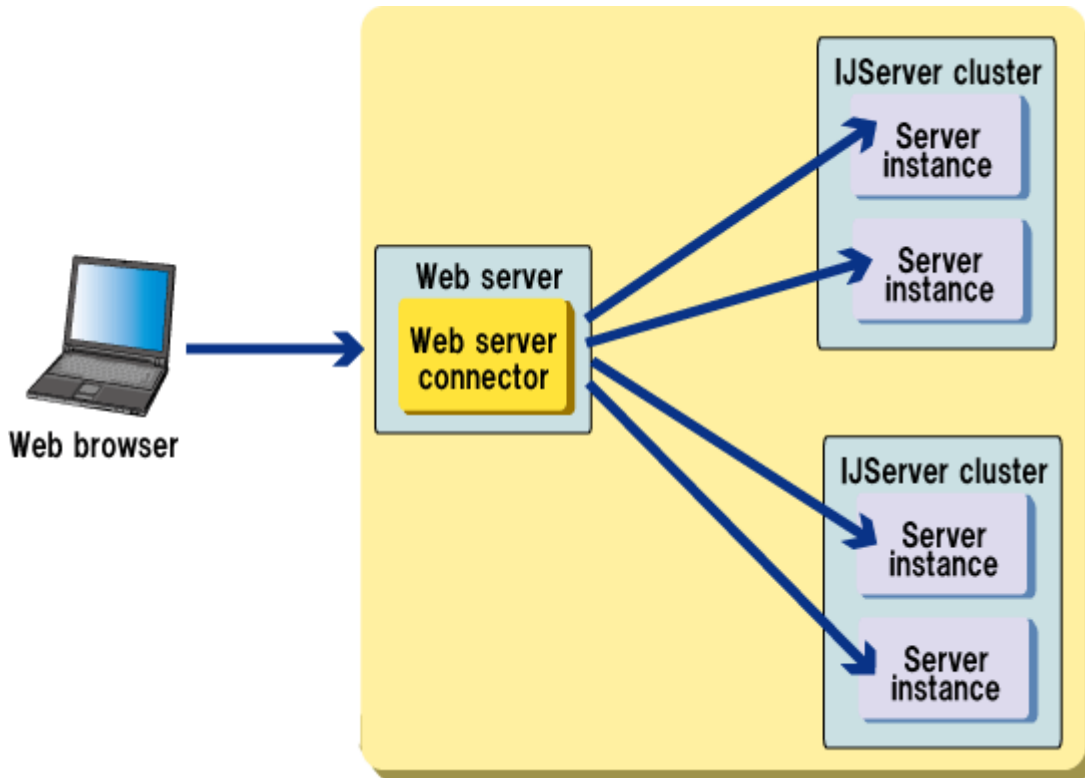
For information on the load balancer settings, refer to the load balancer manual.

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 IIServer cluster is running.

This operation configuration must also be selected when functions specific to the web server are to be used.



4.6.3.3 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.

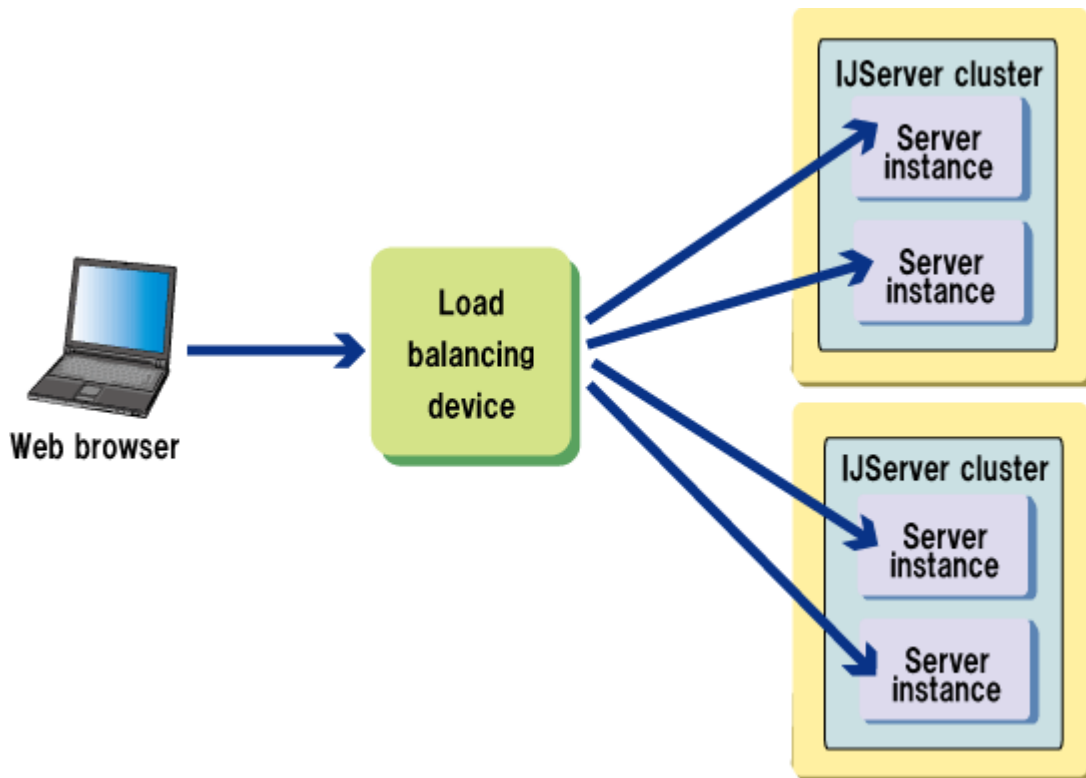
With this operation configuration, a load balancer is required in addition to the machines running IIServer clusters.

Load balancing without preparing a load balancer can also be realized, depending on the web server.

Operations where communications do not pass through a web server

Select this operation configuration if there is no need to use functions specific to the web server.

The load balancer must be set up so that requests can be dispatched to the appropriate server instance.

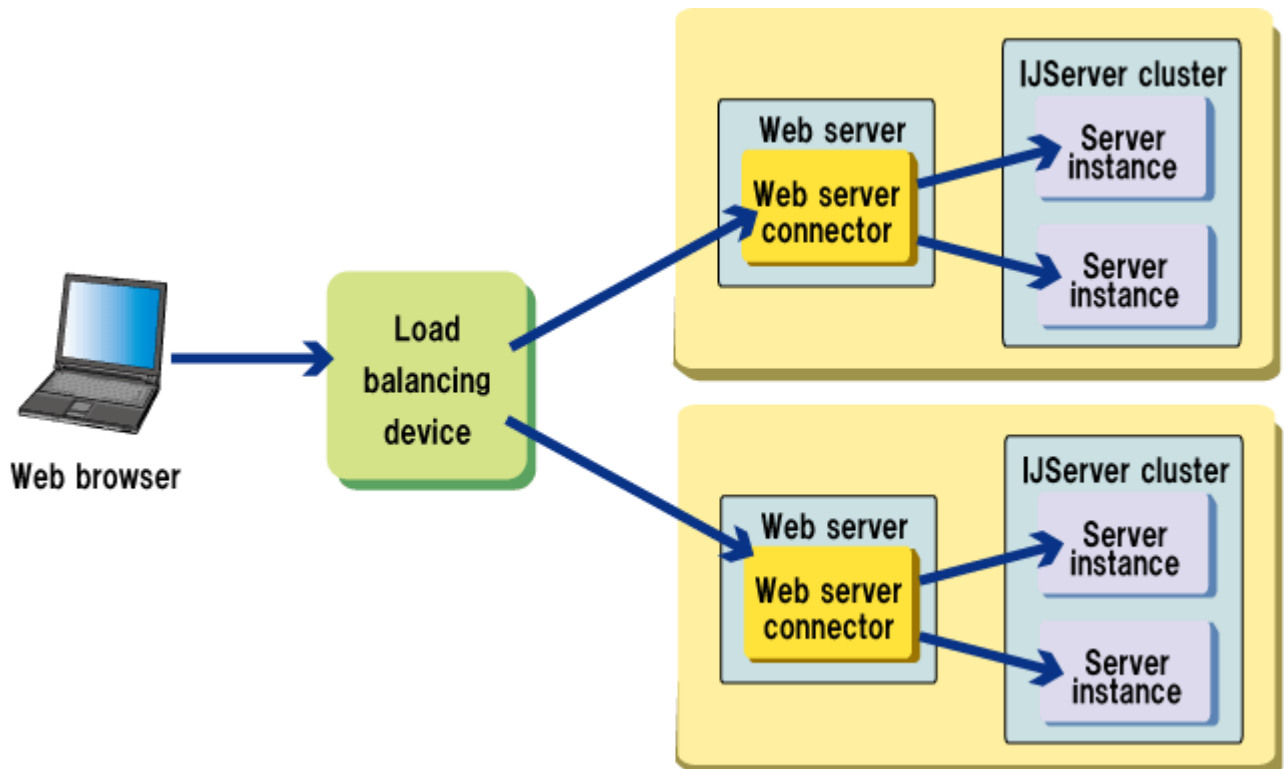


Operations where communications pass through a web server

Select this operation configuration if it is necessary to use functions specific to the web server.

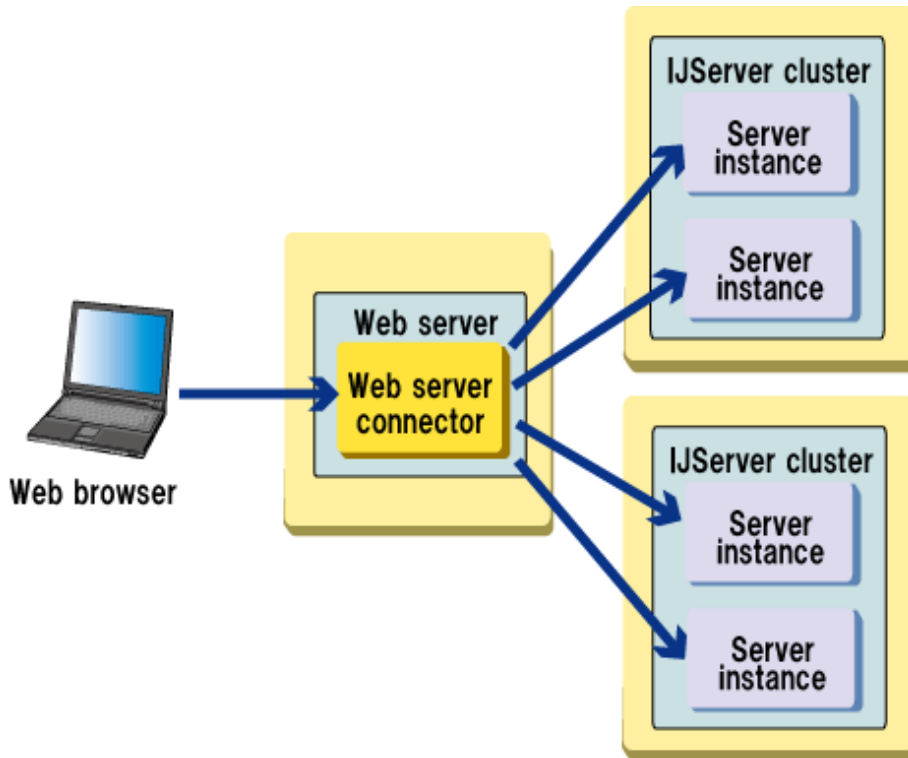
The load balancer must be set up so that requests can be dispatched to the appropriate server.

Requests dispatched to a server are further dispatched to server instances by the web server connector.



When the web server and the IJServer cluster are running on different machines

Select this operation configuration when placing the web server in a DMZ. By placing the server on which the IJServer cluster runs in a secure internal network, the threat of illegal operations from external networks can be dealt with.

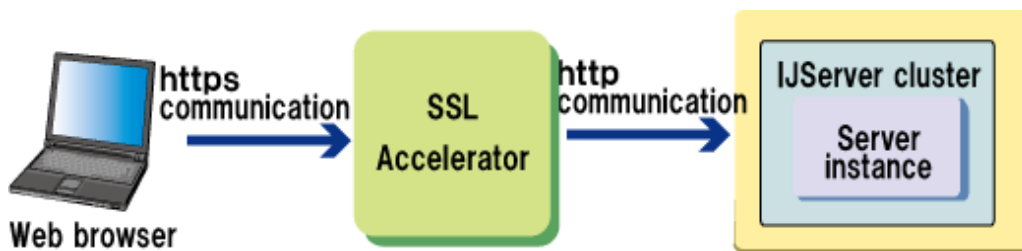


4.6.4 Operation Configurations that Use an SSL Accelerator

For operations performed without passing through a web server in environments where an SSL accelerator or a 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 the request information may not run correctly.

The following diagram shows an example where an SSL accelerator is placed between the client and the web container, and HTTPS is used between the client and the SSL accelerator, while HTTP is used between the SSL accelerator and the web container.



If necessary, use the SSL accelerator function to add a Host header (**Note**) or set up a redirection destination so that the intended behavior can be achieved.

Note) If a Host header has been set up, the web container can acquire the host name and the port number from the information in the Host header, even if this header has not been added by the SSL accelerator function.

4.7 Preparations for Operations Performed via a Web Server

This section explains the preparations required for operations where communications pass through a web server. You must configure the web server, the web server connector, and the IJServer cluster. Note that these tasks may differ depending on how the machine has been configured.

4.7.1 Setting the Web Server Environment

Web servers that support connection with the web container are as follows:

- Interstage HTTP Server 2.2

4.7.2 Setting the Web Server Connector Environment

This section explains the web server connector environment settings.

When there is a Single Web Server

A web connector operating environment is created for the web server (FJapache) created by default during the installation of Interstage HTTP Server 2.2, when the web server connector is installed. For this reason, you need not create an operating environment for the web server connector. For details on the values to be set when configuring an operating environment, refer to "Configuration when created (default value)" in "[9.14.1 create-env Subcommand](#)".

When a Web Server has been Added

Create operating environments for newly added web servers using the create-env subcommand of the wscadmin command. You can check if the web server connector operating environment has been created by using the list-web-servers subcommand of the wscadmin command.

For details, refer to "[9.14.1 create-env Subcommand](#)" or "[9.14.6 list-web-servers Subcommand](#)".

When the Log Settings Need to be Changed

To change the log settings for the web server connector, use the update-log-config subcommand of the wscadmin command. For details, refer to "[9.14.4 update-log-config Subcommand](#)".

When the Web Server Connector has been Uninstalled

If you uninstall the web server connector when operating the web server and the IJServer cluster on the same machine, the linkage with the web server is automatically removed.

4.7.3 Linkage Settings for the Web Server and the IJServer Cluster

This section explains the methods for configuring the web server connector when operating the web server and the IJServer cluster on the same machine (in the same chassis), and on different machines (different chassis), respectively.

Use the asadmin command if operating on the same machine (same chassis), and use the wscadmin command if operating on different machines (different chassis). The following table describes the relation between respective subcommands.

| Function | When operating on the same machine (same chassis) | When operating on different machines (different chassis) |
|------------------|---|---|
| Command name | asadmin command | wscadmin command |
| Linkage settings | create-web-server-ref | add-instance-ref (adds server instance information) |
| | | add-application-ref (adds applications at the distribution target) |

| Function | When operating on the same machine (same chassis) | When operating on different machines (different chassis) |
|---|--|--|
| Delete linkage | delete-web-server-ref | delete-instance-ref |
| Addition of virtual host receiving requests | create-virtual-host-ref | add-virtual-host-ref |
| Deletion of virtual host receiving requests | delete-virtual-host-ref | delete-virtual-host-ref |
| Web server connector environment setup | update-web-server-connector-config | update-cluster-config |
| Displaying settings information | show-web-server-connector-config (displays the web server connector environment settings) | list-web-servers |
| | list-web-server-ref (displays a list of linked web servers) | |
| | list-virtual-host-refs (displays a list of virtual host receiving requests) | |

Note

Note that web servers cannot be linked with IJServer clusters that do not have a server instance. Perform linkage configuration after preparing the IJServer cluster with one or more server instances.

4.7.3.1 Operating the Web Server and the IJServer Cluster on the Same Machine

When operating the web server and the IJServer cluster on the same machine, configure using the procedures given below.

Point

- As the web server and the IJServer cluster are configured to link automatically in the following case, there is no need to perform linkage settings.
 - In machines where there is only one web server that has performed the web server connector environment setup, and a server instance has been created for IJServer clusters that do not have a server instance
- If the following operations are performed on IJServer clusters linked with the web server, the linkage settings will be automatically updated. There is no need to perform the linkage settings again.
 - When a server instance has been added or deleted
 - When an application has been deployed or undeployed
 - When the context root of a web application has been changed
 - When the HTTP listener port number has been changed
 - When the "Network address" network configuration definition item has been changed
- If the following operations are performed on IJServer clusters linked with the web server, the linkage settings will be automatically deleted.
 - When the IJServer cluster has been deleted
 - When all server instances have been deleted from the IJServer cluster
 - When the HTTP listener port has been closed

- Use the list-web-server-refs subcommand of the asadmin command to check if the IJServer cluster is linked with the web server. Refer to "9.1.10.3 list-web-server-refs Subcommand".

Note

When operating on the same machine, do not configure linkage settings between the web server and the IJServer cluster using the wscadmin command. Inconsistencies may be generated in the settings if that command is used, and abnormal operations may occur in the application. In this case, use the wscadmin command to delete the linkages, and then link again using the asadmin command.

Linkage Settings for the Web Server and the IJServer Cluster

1. Use the create-web-server-ref subcommand of the asadmin command to link the web server and the IJServer cluster.

Example

When the linking IJServer cluster is IJServer001, and the web server is FJapache

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-web-server-ref --target IJServer001 FJapache
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-web-server-ref --target IJServer001 FJapache
```

Note

As the "operation mode for access to the web container" will be automatically set to "webservice" when the link is established, requests that do not go through the web server will be rejected. To allow requests that do not go through the web server, set the "operation mode for access to the web container" to "nocheck". For details, refer to "Operation mode for access to the web container" in "7.7.3 Network Configuration Definition Items".

Removing the Web Server and the IJServer Cluster Linkage

1. If incorrect linkage targets have been configured, use the delete-web-server-ref subcommand of the asadmin command to remove the linkage.

Example

When the IJServer cluster removing the linkage is IJServer001, and the web server is FJapache

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-web-server-ref --target IJServer001 FJapache
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-web-server-ref --target IJServer001 FJapache
```

4.7.3.2 Operating the Web Server and the IJServer Cluster on Different Machines

When operating the web server and the IJServer cluster on different machines, configure the environment using the procedures given below.

Note

- With the web server and the IJServer cluster, use the same version of Interstage.
- If settings such as the server instance, application addition or deletion, IP address, and port numbers were changed after linkage settings had been configured, change the linkage settings using the wscadmin command.

Web Server Settings

1. Link the web server and the IJServer cluster by using the add-instance-ref subcommand of the wscadmin command.

Example

When the linking web server name is FJapache, the IJServer cluster is IJServer001, the IP address is 192.0.2.1, and the listener port is 28292

Windows32/64

```
C:\Interstage\F3FMwsc\bin\wscadmin add-instance-ref --webserver FJapache --target IJServer001 192.0.2.1:28292
```

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin add-instance-ref --webserver FJapache --target IJServer001 192.0.2.1:28292
```

2. Configure the deployed web application as the web server connector distribution target by using the add-application-ref subcommand of the wscadmin command.

Example

When the linking web server name is FJapache, the IJServer cluster is IJServer001, and the context root of the web application is SampleAppr1

Windows32/64

```
C:\Interstage\F3FMwsc\bin\wscadmin add-application-ref --webserver FJapache --target IJServer001 SampleAppr1
```

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin add-application-ref --webserver FJapache --target IJServer001 SampleAppr1
```

Removing the Web Server and the IJServer Cluster Linkage

1. If incorrect linkage targets have been configured, use the delete-instance-ref subcommand of the wscadmin command to remove the linkage between the web server and the IJServer cluster.

Example

When the web server name removing the linkage is FJapache, and the IJServer cluster is IJServer001

Windows32/64

```
C:\Interstage\F3FMwsc\bin\wscadmin delete-instance-ref --webserver FJapache --target IJServer001 all
```

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin delete-instance-ref --webserver FJapache --target IJServer001 all
```

Settings on the IJServer Cluster

1. Use the set subcommand of the asadmin command on the IJServer cluster machine to change the operation configuration for accessing web containers to "webserver" or "nocheck". For details, refer to "[Operation mode for access to the web container](#)" in "[7.7.3 Network Configuration Definition Items](#)".

4.7.4 Preparatory Monitoring Web Server Connector Faults Operations

The fault monitoring function must be configured if you want to use web server connector fault monitoring.



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.)

Windows64 **Solaris64** **Linux64**

The Web Package is not provided for 64-bit products.

- The fault monitoring function is only used in configurations where the IJServer cluster and the web server are operated separately.

Settings

The settings 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 web 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. |

| Item name | Meaning |
|-------------------|--|
| Startup Wait Time | Set the startup wait time for the fault monitoring function if it does not start with the web server connector. If the fault monitoring function does not start before this time is exceeded, the web server connector starts 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. |

Preparation before Operation

Configure using the update-fault-monitor-config subcommand of the wscadmin command to use the fault monitoring function.



Example

When the fault monitoring web server name is FJapache, and ping is specified as the fault monitoring method

Windows32/64

```
C:\Interstage\F3FMwsc\bin>wscadmin update-fault-monitor-config --method ping --target FJapache
```

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin update-fault-monitor-config --method ping --target FJapache
```

Viewing the Operation Status

The following command can be used to display the operation status of the distribution target IJServer cluster in the web server machine. Refer to Reference Manual (Command Edition) for details of the command:

```
svmondspstat
```

Note

Note the following points when using the fault monitoring function:

- Monitor all the IJServer clusters listed below with the conditions specified in the fault monitoring settings. You cannot use different conditions to monitor each IJServer cluster.
 - Distribution targets of Web Server Connector (for Interstage HTTP Server 2.2)
Specify the --add-instance-ref subcommand of wscadmin.
 - Distribution targets of Web Server Connector (for Interstage HTTP Server)
Specify using [IP address for Servlet container : Port number] in Interstage Management Console.
- 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.

4.8 Preparations for Operations Not Performed via a Web Server

This section explains the preparations for operations that access web containers directly without going through a web server.

4.8.1 Building a New Environment

In the cases listed below, the web server and the IJServer cluster are configured to automatically link. For that reason, even when you are building a new environment, refer to "[4.8.2.1 Operating the Web Server and the IJServer Cluster on the Same Machine](#)".

- In machines where there is only one web server (**Note**) that has performed the web server connector environment setup, and a server instance has been created for IJServer clusters that do not have a server instance
Note) If the web server and the IJServer cluster are installed, the web server "FJapache" with the web server connector environment is created.

If the above does not apply, the operation configuration to access the web container will automatically be set to "direct", making it an operation configuration that does not go through the web server.

4.8.2 Changing from Operations Using the Web Server

Operations of web servers and IJServer clusters will differ depending on whether you are operating them on the same machine or on different machines.

4.8.2.1 Operating the Web Server and the IJServer Cluster on the Same Machine

1. Use the delete-web-server-ref subcommand of the asadmin command to remove the linkage between the web server and the IJServer cluster.
When the link is removed, the operation configuration to access the web container will be automatically set to "direct".

Example

When the IJServer cluster removing the linkage is IJServer001, and the web server is FJapache

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-web-server-ref --target IJServer001 FJapache
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-web-server-ref --target IJServer001 FJapache
```

4.8.2.2 Operating the Web server and the IJServer Cluster on Different Machines

The web server and the IJServer cluster are configured as described below.

Web Server Settings

1. Use the delete-instance-ref subcommand of the wscadmin command to remove the linkage between the web server and the IJServer cluster.

Example

When the web server name removing the linkage is FJapache, the IJServer cluster is IJServer001, and all instance information is to be deleted

Windows32/64

```
C:\Interstage\F3FMwsc\bin\wscadmin delete-instance-ref --webserver FJapache --target IJServer001 all
```

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin delete-instance-ref --webserver FJapache --target IJServer001 all
```

Settings on the IJServer Cluster

1. Use the set subcommand of the asadmin command on the IJServer cluster machine to change the operation configuration for accessing web containers to "direct". For details, refer to "[Operation mode for access to the web container](#)" in "[7.7.3 Network Configuration Definition Items](#)".

4.9 Java EE Application Client Operations

This section explains the Java EE application client operations.

4.9.1 Setting the Java EE Application Client Environment

Setting a Class Path

If it is necessary to add a class path to run 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
C:\Interstage\F3FMisje6\glassfish\bin\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 "3.2.1 Interstage deployment descriptor".

```
<?xml version="1.0" encoding="UTF-8"?>

<client-container>
  <target-server name="server1" address="localhost" port="23610"/>
</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 6 common directory]\domains\domain1\config\sun-acc.xml
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/config/sun-acc.xml
```



Do not edit the Interstage ACC deployment descriptor (sun-acc.xml) referenced if the -xml option is not specified. If it is edited, this product may need to be reinstalled.

Client package

During execution of the appclient command, you must specify Interstage ACC deployment descriptor (sun-acc.xml) in the -xml option. If required, refer to the template stored below to create the Interstage ACC deployment descriptor (sun-acc.xml).

Windows32/64

```
[Java EE 6 installation directory]\glassfish\config\sun-acc.xml
```

Solaris32/64 Linux32/64

```
[Java EE 6 installation directory]/glassfish/config/sun-acc.xml
```

4.9.2 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 |
| | glassfish-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.

Manifest file

Define the Java EE application client main class in the manifest file.

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 specifications.

Interstage deployment descriptor file

In IJServer cluster, the Java EE application client behavior can be extended by defining the Interstage deployment descriptor (glassfish-application-client.xml). This file is not mandatory, therefore it should only be created when required.

2. Generate the EAR File

If there are applications that are referenced from the Java EE application client, package and deploy the Java EE application client and the applications that are referenced from the Java EE application client as one EAR file.

At this time, specify the files of the referenced application in Class-Path of the Java EE application client manifest file. Use the relative path from the EAR file root.



Example

Deploying the Java EE application client using the following file structure:

| File structure <Up Down> | | Explanation |
|--------------------------------|------------------------------|---|
| MyApplication.ear | | EAR file |
| | MyClient.jar | Java EE application client |
| | com.mycompany.client.MyClass | Main class |
| | META-INF | |
| | MANIFEST.MF | Java EE application client manifest file |
| | MyEjb.jar | ejb-jar file that is referenced by the Java EE application client |
| | Module.jar | JAR file that is referenced by the Java EE application client |
| | META-INF | |
| MANIFEST.MF | EAR file manifest file | |

To allow MyClient.jar to reference MyEjb.jar and Module.jar, define MANIFEST.MF of MyClient.jar as follows:

```
Main-Class: com.mycompany.client.MyClass
Class-Path: MyEjb.jar Module.jar
```

3. Deploy

Deploy the file to the Interstage Java EE 6 DAS service or IJServer cluster.

4. Download the Client Stub JAR File

Download the client stub JAR file and the directory that includes the file necessary for the execution of the Java EE application client, both of which are generated at deployment.

Use one of the following methods to download the directory:

- Specify the --retrieve option and download when the EAR file is deployed using the asadmin command deploy subcommand
- Download using the asadmin command get-client-stubs subcommand

Deployment privileges are required to download the directory. After the directory has been downloaded, it must be distributed to the user.

Note that the directory structure is as follows:

- Client stub JAR file that is referenced from the downloaded client stub JAR file
- Submodules (ejb-jar file and Java EE application client)
- 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

Note that because client stub JAR files are created, the total file size of acquired files may increase and exceed the number of deployed applications.

For details on the asadmin command, refer to "9.1 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, and 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 "9.3 appclient".

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\appclient -client MyApplicationClient.jar -xml sun-acc.xml
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/appclient -client MyApplicationClient.jar -xml sun-acc.xml
```

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.

4.10 Procedure When the Web Service Is Used

In Interstage Java EE 6, web service applications created in accordance with Web Services for Java EE 1.3 can be deployed to IJServer clusters 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 created using JAX-WS run on IJServer clusters.

Create an IJServer cluster, and deploy the web service application. For details on developing web service applications, refer to "[3.1.1 Developing Web Service Applications](#)", "[3.1.2 Developing Web Service Client Applications](#)", and "[3.1.3 Data Types that can be Used in Web Service Communication](#)". For details on deployment, refer to "[4.10.1 Deploying Web Service Applications](#)".



Note

JDK is required to use the web service function. Operations using JRE are not supported.

4.10.1 Deploying Web Service Applications

Web service applications created using JAX-WS are deployed to IJServer clusters in the same way as normal WAR, ejb-jar, and EAR modules. For details on the method of deployment, refer to "[4.5 Deploying Applications](#)".

Additionally, to obtain resources referenced from the WSDL file via a proxy, the system properties of the java process used by the IJServer cluster must be set.

Referencing the List of Web Services That were Deployed

The list of applications can be referenced using the `asadmin` command `list-components` subcommand. 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 "[3.1.1 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.

4.10.2 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 (including attachments and SOAP messages) received in the web service can be constrained by using the following method.

Specify the system property shown below in the Java VM option of the IJServer cluster that operates the web service.

Property name

```
com.sun.xml.ws.transport.http.servlet.ServletConnectionImpl.maxRequestLength
```

Value that is specified

Specify the maximum request size (bytes) for receive processing. If a negative value, an illegal value, or a value that exceeds the `int` type range is specified, this limit becomes invalid (value is unlimited).

Example

The following example displays settings where the upper limit of the request size processed in the web service operated using the IJServer cluster "MyIJServer" is 1 MB (1048576 bytes).

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jvm-options --target MyIJServer -
Dcom.sun.xml.ws.transport.http.servlet.ServletConnectionImpl.maxRequestLength=1048576
Created 1 option(s)
Command create-jvm-options executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-jvm-options --target MyIJServer -
Dcom.sun.xml.ws.transport.http.servlet.ServletConnectionImpl.maxRequestLength=1048576
Created 1 option(s)
Command create-jvm-options executed successfully.
```

Return of the Exception Stack Traces That Occurred in the Web Service to the Client

To enable rapid cause investigation, exception stack traces that occurred in the web service or its operating environment can be returned to the web service client of the caller. For Java VM options of the IJServer cluster that operates the web service, specify the system property shown below.

Property name

com.sun.xml.ws.fault.SOAPFaultBuilder.captureStackTrace

Value that is specified

true

Example

The following example displays the settings that return the exception stack trace to the requester of the web service operated on the IJServer cluster "MyIJServer".

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jvm-options --target MyIJServer -
Dcom.sun.xml.ws.fault.SOAPFaultBuilder.captureStackTrace=true
Created 1 option(s)
Command create-jvm-options executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-jvm-options --target MyIJServer -
Dcom.sun.xml.ws.fault.SOAPFaultBuilder.captureStackTrace=true
Created 1 option(s)
Command create-jvm-options executed successfully.
```

Note

In the same way as the above system property `com.sun.xml.ws.fault.SOAPFaultBuilder.captureStackTrace`, the unique system property shown below can also be used to reply to the client by sending a stack trace from the web service where the exception occurred. However, unique properties may not be retained in the future, therefore this is not recommended.

Property name

com.sun.xml.ws.fault.SOAPFaultBuilder.enableCaptureStackTrace

Value that is specified

Any

Example

The following example displays settings that return the exception stack trace to the requester to the web service operated using the IJServer cluster "MyIJServer".

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jvm-options --target MyIJServer -
Dcom.sun.xml.ws.fault.SOAPFaultBuilder.enableCaptureStackTrace=true
Created 1 option(s)
Command create-jvm-options executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSSVisje6/glassfish/bin/asadmin create-jvm-options --target MyIJServer -
Dcom.sun.xml.ws.fault.SOAPFaultBuilder.enableCaptureStackTrace=true
Created 1 option(s)
Command create-jvm-options executed successfully.
```

Note

In case of non-runtime exceptions for which "throws" is declared explicitly in the web service application, this feature does not reply with the stack trace.

4.11 Procedure When the Web Service Client Is Used

This section explains how to use the web service client.

4.11.1 Web Service Client Operating Environment

Web service client applications that were created using JAX-WS can be operated in the following environments:

IJServer 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 "[4.9.1 Setting the Java EE Application Client Environment](#)".

4.11.2 Executing the Web Service Client

Customizing the WSDL URL

When the web service client is executed, it accesses the WSDL URL specified using the `ijwsimport` command.

If these two URLs differ, follow the procedure below:

- Define the URL in the `service-ref/wsdL-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.

Customizing the Web Service URL

The web service URL can be customized using the `javax.xml.ws.service.endpoint.address` property.

4.12 Setting the JNDI Environment

This section explains the JNDI environment settings.

4.12.1 Setting Environment Variables

The environment variables required to use the JNDI service provider are explained below. For details on accessing the database, refer to "[4.14 Setting the Database Environment](#)".

Using IJServer Cluster and the Application Client Container

There is no need to set environment variables. The environment settings required for the operation are set automatically when the container starts.

Standalone Clients

To execute Java SE standalone applications by using the `java` command, set the following JAR files in the class path.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\lib\appserv-rt.jar  
C:\Interstage\F3FMisje6\glassfish\lib\javaee.jar
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/lib/appserv-rt.jar  
/opt/FJSVisje6/glassfish/lib/javaee.jar
```

To reference various resource objects in Java SE standalone applications, in addition to the above class path settings, the class path must also be set for the JAR files shown below.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\lib\install\applications\jmsra\imqjmsra.jar
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/lib/install/applications/jmsra/imqjmsra.jar
```

4.12.2 Settings When the Initial Context Is Generated

When JNDI API is used in an 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 passed to the constructor, but the value 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 an application.

To resolve this problem in Java EE, application portability is improved by automatically configuring the environment when the container starts.

For IJServer Clusters and Application Client Containers

The container automatically configures the environment, therefore there is no need to specify the JNDI environment properties. The `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 Standalone Clients

In case of operations on a standalone 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 define the JNDI environment property explicitly.

| Property name | Value | Explanation |
|---|---|--|
| <code>java.naming.factory.initial</code> (Note) | <code>com.sun.enterprise.naming.SerialInitContextFactory</code> | Standard initial context factory for accessing the IJServer cluster naming service |
| <code>java.naming.factory.url.pkgs</code> | <code>com.sun.enterprise.naming</code> | Property for specifying the package prefix list used for loading the URL context factory |

Note) If the following factories are specified in `java.naming.factory.initial`, it will operate but the behavior cannot be guaranteed. Use the above property instead.

| Value | Explanation |
|--|--|
| <code>com.sun.jndi.cosnaming.CNCtxFactory</code> | Initial context factory for CosNaming |
| <code>com.sun.appserv.naming.S1ASCtxFactory</code> | Initial context factory for load balancing |

4.12.3 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.

For details on how to check the IIOP listener port number, refer to the IIOP service definition item "[Listener port](#)".

For IJServer Clusters

To access an Enterprise JavaBean registered in the naming service of another process or remote server from an IJServer cluster, specify the host name, the IIOP listener port number, and the JNDI name of the other process or remote server in the Interstage deployment descriptor file by using the INS rules. 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="23610"/>
</client-container>
```

For details on the Interstage deployment descriptor (sun-acc.xml) file, refer to ["3.2.1 Interstage deployment descriptor"](#).

When a Standalone Client Is Used

Refer to ["4.18.3 Settings for the Client \(the Caller\)"](#) - "Settings for Standalone Clients".

4.13 Preparatory Tasks for Resource Definitions

This section explains the preparatory tasks for resource definitions.

4.13.1 Procedure When JMS Is Used

To use JMS, it is necessary to start the Interstage Java EE 6 DAS service and create the various JMS resources.. For details, refer to ["4.15 JMS Operation Methods"](#).

4.13.2 Procedure When JavaMail Is Used

The operations that are required when JavaMail is used are explained in this section.

Application Creation

The application that sends/receives mail is created. For details, refer to the JavaMail 1.4 specifications.

Mail Server Settings

To send/receive mail using a JavaMail application, an SMTP server for sending mail, and a POP3 server or IMAP server 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 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 ["9.1 asadmin"](#).

If a JavaMail session is created or deleted, restart the Interstage Java EE 6 DAS service or the IJServer cluster for which the settings have been configured.

4.13.3 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 ["4.14 Setting the Database Environment"](#).

4.13.4 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 "4.16 Connector Operation Method".

4.13.5 Procedure When a Resource Defined by the User Independently Is Used

In addition to the resources defined in the IJServer cluster or the Enterprise JavaBean that was deployed in the IJServer cluster, resources managed in the naming service can also be defined to suit your requirement.

A resource that can be managed in an IJServer cluster locally is called a "custom resource". A resource that can be managed outside the IJServer cluster process when JNDI search is specified is called an "external resource". These resources can be defined using the `asadmin` command. The methods used to define each resource are explained below.

4.13.5.1 Method Used to Define Custom Resources

In addition to the resources defined in the IJServer cluster or the Enterprise JavaBean that was deployed in the IJServer cluster, resources managed in the naming service can also be defined to suit your requirement. Such resources are called "custom resources".

The following properties must be specified to define a custom resource:

- JNDI name
- Resource type
- Factory class
- Explanation
- Status

Specific properties available for the specified factory class can also be defined as "additional properties" described below.

- 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 obtain the field values from the object of the `javax.naming.Reference` class, and then generates and returns the corresponding object.

| Fields of the <code>javax.naming.Reference</code> class object | Properties |
|--|---|
| <code>classFactory</code> | Factory class |
| <code>className</code> | Resource type |
| <code>addr</code> | Additional properties The address type (<code>addrType</code>) is set to the property name, while the content of the address is set to the property value. |



Example

Examples for a custom resource class and a factory class are shown below.

The following example shows a 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 shows a 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.

For details on how to configure the settings, refer to ["9.1.14.18 create-custom-resource Subcommand"](#).

| Property | Value |
|-----------|----------|
| JNDI name | Any name |

| Property | Value |
|---------------|-----------------------------|
| Resource type | com.mycompany.Widget |
| Factory class | com.mycompany.WidgetFactory |

4.13.5.2 Method Used to Define External Resources

In the same way as for custom resources, in addition to the resources defined in the IJServer cluster or the Enterprise JavaBean that was deployed in the IJServer cluster, resources that define objects managed in the naming service to suit the given requirements also include external resources.

The following must be specified to define external resources. A difference in comparison to custom resources is that the interface and JNDI search implemented by the factory class can be specified.

- JNDI name
- Resource type
- Factory class
- JNDI search
- Explanation
- Status

For details on how to configure the settings, refer to "[9.1.14.11 create-jndi-resource Subcommand](#)".

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" 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.

4.13.6 Procedure for Changing the Resource Status

The status of various resources can be set for an IJServer cluster. One of the following can be set as the status:

- Enabled
- Disabled

To make a resource unavailable in an IJServer cluster, disable the status of the resource. The disabled resource is not registered in the naming service, and 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 6 DAS service
- All IJServer clusters and the Interstage Java EE 6 DAS service

The procedure for changing the resource status is explained below. A resource can only be used when the status of both of the following is "enabled":

- Status of the resource itself (enabled/disabled)
- Status of the resource of the target (enabled/disabled)

Method to Use the asadmin Command

Specifying the status when a 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 content 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 | IJServer cluster name | Can be used (is enabled) in the IJServer cluster server instance. The resource status itself will also be enabled. |
| | server, or not specified | Can be used (is enabled) in the Interstage Java EE 6 DAS service. The resource status itself will also be enabled. |
| | domain | Enabled. The resource status itself will also be enabled, so the resource can be used by creating a reference from the target. |
| false | IJServer cluster name | Unavailable (disabled) in the IJServer cluster server instance. The resource status itself will also be enabled. |
| | server, or not specified | Unavailable (disabled) in the Interstage Java EE 6 DAS service. The resource status itself will also be enabled. |
| | domain | 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 a resource

The following definition items are specified using the set subcommand:

- When "false" is specified for the "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 an IJServer cluster, change the status to the same value for each server instance. It is also recommended that the "clusters" definition items that end in ".enabled" (indicating whether the resource can be looked up) also be changed to the same value. If the "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 resources ending with ".enabled" that corresponds to the resource type, the resource is disabled in all IJServer clusters and the Interstage Java EE 6 DAS service.
- 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.



Note

After the resource status is changed, restart the target (IJServer cluster or Interstage Java EE 6 DAS service) that uses it.

4.13.7 Procedure for Selecting the Target for Running Resources

Specify the target used to run a resource when that resource is used.

Resources for which a target has not been specified, or for which the disabled status was set cannot be used.

To select a target, either specify it when the resource is created or add or delete the target reference after the reference is defined. Multiple targets can be specified for identical resources.

After a 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, or not specified | The resource can be referenced from the Interstage Java EE 6 DAS service. This target should only be used during development. |
| domain | The resource is not referenced from any IJServer cluster or the Interstage Java EE 6 DAS service. (Note) |

Note)

"domain" cannot be specified for the target option of commands (create-resource-ref subcommand and delete-resource-ref subcommand) that add or delete a target reference.

A target can be changed by using the asadmin command. For details, refer to the following:

- "9.1.14.33 create-resource-ref Subcommand" or "9.1.14.34 delete-resource-ref Subcommand"

For JDBC resources listed below that are defined by default, setup is performed by 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.

- jdbc/___TimerPool
- jdbc/___default

4.13.8 Relationship between JMS Resources and Connector Resources

JMS uses an integrated connector resource adapter called "jmsra". The JMS user operates JMS resources by using the JMS resources subcommand of the asadmin command. For this reason, there is normally no need to be aware of the resource adapter.

JMS resources have been defined as connector resources, therefore a connector resources-related message may be output when the JMS resource definition is edited or operated.



When a JMS resource is operated using 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 subcommand of the asadmin command.

Relationship between JMS Resources and Connector Resources

The relationship between JMS resources and connector resources is shown below.

| 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.

As described below, when creating a new JMS resource, the corresponding connector resource is created automatically. When the resource is updated or deleted, the corresponding connector resource is also updated or deleted.

Creating a new JMS connection factory

The following connector resources are created automatically:

1. The connector connection pool is created.
The JMS connection factory JNDI name is used as the connector connection pool name, and "jmsra" is used as the resource adapter.
2. The connector resource is created.
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 are any non-"jmsra" connector connection pools, an error will occur.

Creating a new JMS send destination resource

The following managed object resource is created automatically.

The JMS send destination resource JNDI name is used as the managed object resource JNDI name.

Relationship between JMS Resources and Connector Resource Definitions

The relationship between JMS resources and connector resources is explained below.

'-' means that there are no corresponding items.

JMS connection factory

The connector resource definition items that correspond to the JMS connection factory definition items are shown below.

To edit the JMS connection factory definition items by using the asadmin command set subcommand, edit the corresponding [connector connection pool](#) and [connector resource definition items](#).

| JMS connection factory | Connector connection pool | Connector resource |
|-------------------------------|-------------------------------|--------------------|
| JNDI name | Connection pool name | JNDI name |
| -(This is fixed as "jmsra".) | Resource adapter | - |
| Resource type | Connection definition name | - |
| Description | Description | Description |
| Status | - | Status |
| Initial and Minimum pool size | Initial and Minimum pool size | - |
| Maximum pool size | Maximum pool size | - |
| Change in pool size | Change in pool size | - |
| Idle Timeout | Idle timeout | - |
| Maximum wait time | Maximum wait time | - |
| Transaction support | Transaction support | - |
| Additional property | Additional property | - |

JMS send destination resource

The managed object resource definition items that correspond to the JMS send destination resource definition items are shown below.

To edit the JMS send destination resource definition items by using the asadmin command set subcommand, edit the corresponding [managed object resource definition items](#).

| JMS send destination resource | Managed object resource |
|-------------------------------|-------------------------|
| JNDI name | JNDI name |

| JMS send destination resource | Managed object resource |
|-----------------------------------|--|
| Physical storage destination name | -(This is specified for the 'Name' property) |
| Resource type | Resource type |
| -(This is fixed as "jmsra".) | Resource adapter name |
| Status | Status |
| Additional property | Additional property |

4.14 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 "[F.3 Database](#)".
2. Set the environment so that the JDBC driver can be used.
For details on how to configure the JDBC driver environment settings, refer to "[4.14.1 Setting the JDBC Driver Environment](#)".
3. 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.
4. Create a JDBC connection pool for the database.
For details on how to create the JDBC connection pool, refer to "[9.1.14.1 create-jdbc-connection-pool Subcommand](#)". Additionally, the Ping functionality can be used for the connection pool that was created. For details, refer to "[4.14.7 Ping Functionality](#)".
5. Create the JDBC resource for the connection pool.
For details on how to create the JDBC resource, refer to "[9.1.14.5 create-jdbc-resource Subcommand](#)".



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. If the asadmin command is used, then the cascade option can be set to 'true' or 'false'.

4.14.1 Setting the JDBC Driver Environment

The methods used to set each JDBC driver environment are explained below. The items required to set the environment differ, depending on the JDBC driver that is used. These items are set for each environment as shown below. In addition to IJServer cluster settings, if you want to use utilities (such as Ping), the Interstage Java EE 6 DAS service environment must be set up. Also, configure environment settings for the Interstage Java EE 6 DAS service even when the Interstage Java EE 6 DAS service is used as the development environment. The "Type 2 JDBC driver" is a JDBC driver, part of which is implemented in native code. The "Type 4 JDBC driver" is a JDBC driver that is entirely implemented in Java.

Setting a Class Path

To set the JDBC driver JAR file (or ZIP file, when this is provided in ZIP format) so that it can be referenced by an IJServer cluster or the Interstage Java EE 6 DAS service, execute one of the procedures described below.
For details on the class loader, refer to "[2.22 Class Loader](#)".

Using a web application or an EJB application

Perform one of the following procedures.

When operations can be performed by copying the JDBC driver

1. Copy the JAR file of the driver to the following common directory:

Windows32/64

```
jar: [Java EE 6 common directory]\domains\domain1\lib
class: [Java EE 6 common directory]\domains\domain1\lib\classes
```

Solaris32/64 Linux32/64

```
jar: [Java EE 6 common directory]/domains/domain1/lib  
class: [Java EE 6 common directory]/domains/domain1/lib/classes
```

2. Update the last updated date and time of domain.xml to the current date and time. For details on the procedure, refer to the note in "[2.1.4 Repository Synchronization](#)".
3. Restart the IJServer cluster or the Interstage Java EE 6 DAS service for the environment settings target.

When operations cannot be performed by copying the JDBC driver

To enable the path of the JDBC driver that is already installed without copying the JDBC driver JAR file, for example Symfoware, use the following procedure:

1. Create the MANIFEST.MF manifest file that includes the Class-Path attribute, and specify the absolute path to the JDBC driver JAR file in this attribute. You must enter a line feed at the end of the path. In Windows, define the file in URL format using the absolute path.

```
Class-Path: <JDBC driver JAR file absolute path><line feed>
```

Example

Using Symfoware

Windows32/64

```
Class-Path: file:///C:/SFWCLNT/JDBC/fjjdbc/lib/fjsymjdbc4.jar<line feed>
```

Solaris32/64 Linux32/64

```
Class-Path: /opt/FJSVsymjd/fjjdbc/lib/fjsymjdbc4.jar<line feed>
```

2. Execute the following command from the command prompt to create the JAR file:

```
jar cvfm <arbitrary JAR file name> MANIFEST.MF
```

3. Copy the JAR that was created to the following common directory:

Windows32/64

```
jar: [Java EE 6 common directory]\domains\domain1\lib  
class: [Java EE 6 common directory]\domains\domain1\lib\classes
```

Solaris32/64 Linux32/64

```
jar: [Java EE 6 common directory]/domains/domain1/lib  
class: [Java EE 6 common directory]/domains/domain1/lib/classes
```

4. Update the last updated date and time of domain.xml to the current date and time. For details on the procedure, refer to the note in "[2.1.4 Repository Synchronization](#)".
5. Restart the IJServer cluster or the Interstage Java EE 6 DAS service for the environment settings target.

Using a Java EE application client

Configure the class path of the JDBC driver in the environment variable APPCPATH of the command prompt where applient commands are executed.

For details on how to configure the APPCPATH environment variable, refer to "[4.9.1 Setting the Java EE Application Client Environment](#)".

Using a Java SE standalone application

Specify the JDBC driver class path in the CLASSPATH environment variable at the command prompt from which the Java SE standalone application is started. You can also specify the JDBC driver class path in the -classpath option when you start the Java SE standalone application.

Setting a Path/Library Path

To set the path or the library path so that it can be referenced by an IIServer cluster or the Interstage Java EE 6 DAS service when using the Type2 JDBC driver (Oracle OCI JDBC driver, or Symfoware JDBC driver), configure the PATH environment variable (in Solaris/Linux, this is the LD_LIBRARY_PATH environment variable) by using the method described below.

Additionally, if it is necessary to set an environment variable other than PATH, LD_LIBRARY_PATH, or CLASSPATH to run the JDBC driver, configure the environment variable by using the method described below.

Specify the environment variable on the command prompt on which you are to run the start-domain subcommand, and then restart the Interstage Java EE 6 DAS service.

When using a Java EE application client or a Java SE standalone application, specify the PATH (in Solaris/Linux, LD_LIBRARY_PATH) environment variable on the command prompt on which you are to run the applclient command or the Java SE standalone application.



Notes on using JPA

When deploying an application by using JPA, a connection to a database may be established. For this reason, when using JPA, take the following actions before deploying the application:

1. Start the target database to be connected to.
2. Configure the JDBC driver environment settings.
 - Using a web application or an EJB application
Configure the class path, and the path or library path settings.
 - Using a Java EE application client
In addition to configuring the APPCPATH environment variable, configure the class path and the path or library path settings for the web application or the EJB application.
3. Create the JDBC connection pool for the database and the JDBC resource for the JDBC connection pool.

For details on how to build a database environment, refer to "[4.14 Setting the Database Environment](#)".

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 datasource 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 datasource 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 |
|------------------------|---|
| javax.sql.DataSource | This is specified when a local transaction is used. When the JDBC connection pool acquires a physical connection, the getConnection method of the javax.sql.DataSource interface is executed on the datasource class. When the JDBC connection pool discards a physical connection, the "close" method of the java.sql.Connection interface is executed. |
| javax.sql.XADataSource | This is specified when a global transaction is used. When the JDBC connection pool acquires a physical connection, the getXAConnection method of the javax.sql.XADataSource interface is executed |

| Resource type | Explanation |
|------------------------------------|---|
| | on the datasource class. When a physical connection is discarded, the "close" method of the javax.sql.XADataSource interface is executed. |
| javax.sql.ConnectionPoolDataSource | This is specified when a local transaction is used. When the JDBC connection pool acquires a physical connection, the getPooledConnection method of the javax.sql.ConnectionPoolDataSource interface is executed on the datasource class. When a physical connection is discarded, the "close" method of the javax.sql.PooledConnection interface is executed. |



Note

Notes on using the pooling feature provided by the JDBC driver

If the pooling feature of the JDBC driver is enabled, it will operate redundantly with the Interstage pooling feature. For this reason, disable the Interstage pooling feature. For details on the configuration method, refer to "[7.5.1 JDBC Connection Pool Definition Items](#)".

For example, if the oracle.jdbc.pool.OracleDataSource 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 6 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 6 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 6 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 "asadmin", "[create-password-alias Subcommand](#)".
- For the property name initial characters, it makes no difference whether uppercase or lowercase 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".

4.14.2 Java DB JDBC Driver (Type4)

Class Path Settings

Java DB JDBC drivers are bundled with the application server. When executing a Java SE standalone application by using a java command, set the following class path. When using Java DB JDBC drivers with IJServer clusters and application client containers, there is no need to configure class path settings.

For details on class path settings, refer to "[4.14.1 Setting the JDBC Driver Environment](#)".

Built-In Environment

Windows32/64

```
C:\Interstage\F3FMisje6\javadb\lib\derby.jar
C:\Interstage\F3FMisje6\javadb\lib\derbytools.jar
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/javadb/lib/derby.jar
/opt/FJSVisje6/javadb/lib/derbytools.jar
```

Client/Server Environments

Windows32/64

```
C:\Interstage\F3FMisje6\javadb\lib\derbyclient.jar
C:\Interstage\F3FMisje6\javadb\lib\derbytools.jar
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/javadb/lib/derbyclient.jar
/opt/FJSVisje6/javadb/lib/derbytools.jar
```



Note

The Java DB system directory will be the current directory during execution of the Java SE standalone application.

Connection Pool Settings

Specify the following as the connection pool settings.

Specify the name of 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 |
| Datasource class name | Specify one of the following. Embedded environments <ul style="list-style-type: none">- org.apache.derby.jdbc.EmbeddedConnectionPoolDataSource40 |

| Parameter | Value that is specified |
|-----------|--|
| | <ul style="list-style-type: none"> - org.apache.derby.jdbc.EmbeddedDataSource40 - org.apache.derby.jdbc.EmbeddedXADataSource40 <p>Client/server environments</p> <ul style="list-style-type: none"> - org.apache.derby.jdbc.ClientConnectionPoolDataSource40 - org.apache.derby.jdbc.ClientDataSource40 - org.apache.derby.jdbc.ClientXADataSource40 |

Specify the name of the datasource class used for each resource type, as shown 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 can be 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 | If 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. |

4.14.3 Oracle Thin JDBC Driver (Type4)

Configuring Environment Variables

Examples of the settings for the environment variables that are used to run the Oracle JDBC driver are shown below. The JDBC driver storage destination directory is any directory that is used to store the required JDBC class libraries. Instant Client can be installed to obtain the driver, or the driver can be downloaded from the Oracle website. For details, refer to the Oracle manual. If necessary, set the ORACLE_HOME or TNS_ADMIN environment variable, for example.

For details on class path settings, refer to "4.14.1 Setting the JDBC Driver Environment".

| Setting | JDK/JRE | Driver/Version | Value that is specified (Note 1) |
|------------|---------|--------------------|--|
| Class path | 6 | Oracle11g Release2 | JDBC driver storage directory\ojdbc6.jar |
| | | | JDBC driver storage directory\orai18n.jar |
| | | | JDBC driver storage directory\ucp.jar (Note 2) |
| | 6 | Oracle12c Release1 | JDBC driver storage directory\ojdbc6.jar |
| | | | JDBC driver storage directory\orai18n.jar |
| | | | JDBC driver storage directory\ucp.jar (Note 2) |
| | 7 | Oracle12c Release1 | JDBC driver storage directory\ojdbc7.jar |
| | | | JDBC driver storage directory\orai18n.jar |
| | | | JDBC driver storage directory\ucp.jar (Note 2) |

Note 1) In Solaris/Linux, read "/" for "\".

Note 2) This value needs to be set only when the Oracle Universal Connection Pool (UCP) for the JDBC function is used.

Connection Pool Settings

Specify the following as the connection pool settings.

Specify the name of 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 |
| 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 (Note) - oracle.ucp.jdbc.PoolXADataSourceImpl (Note) |

Note) When using the Oracle Universal Connection Pool (UCP) for the JDBC function, specify oracle.ucp.jdbc.PoolDataSourceImpl or oracle.ucp.jdbc.PoolXADataSourceImpl.

Specify the name of the datasource class used for each resource type, as shown 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:thin:@// <i>host_name</i> : <i>port_number</i> / <i>service_name</i> Example: jdbc:oracle:thin:@//localhost:1521/customer_db_service |
| ConnectionFactoryClassName (Note) | Specify one of the following: If the datasource class name is oracle.ucp.jdbc.PoolDataSourceImpl: - oracle.jdbc.pool.OracleDataSource If the datasource class name is oracle.ucp.jdbc.PoolXADataSourceImpl: - oracle.jdbc.xa.client.OracleXADataSource |

Note) When using the Oracle Universal Connection Pool (UCP) for the JDBC function, specify the property ConnectionFactoryClassName.



Note

Specify the user ID and password for the user name and password property names.

4.14.4 Oracle OCI JDBC Driver (Type2)

Configuring Environment Variables

Examples of the settings for the environment variables that are used to run the Oracle JDBC driver are shown below. The JDBC driver storage destination directory is any directory that is used to store the required JDBC class libraries and OCI shared libraries. For example, Instant Client can be installed to obtain the driver. For details, refer to the Oracle manual. If necessary, set the TNS_ADMIN environment variable, for example. However, when the OCI driver is used in a non-Instant Client environment, the ORACLE_HOME environment variable must be set.

For details on class path settings and path or library path settings, refer to "4.14.1 Setting the JDBC Driver Environment".

| Setting | JDK/JRE | Driver/Version | Value that is specified (Note 1) |
|------------|---------|--------------------|--|
| Class path | 6 | Oracle11g Release2 | JDBC driver storage directory\ojdbc6.jar |
| | | | JDBC driver storage directory\orai18n.jar |
| | | | JDBC driver storage directory\ucp.jar (Note 2) |
| | 6 | Oracle12c Release1 | JDBC driver storage directory\ojdbc6.jar |

| Setting | JDK/JRE | Driver/Version | Value that is specified (Note 1) |
|--|---------|--------------------|--|
| | | | JDBC driver storage directory\orai18n.jar |
| | | | JDBC driver storage directory\ucp.jar (Note 2) |
| | 7 | Oracle12c Release1 | JDBC driver storage directory\ojdbc7.jar |
| | | | JDBC driver storage directory\orai18n.jar |
| | | | JDBC driver storage directory\ucp.jar (Note 2) |
| Windows32/64 Path | - | Oracle11g Release2 | JDBC driver storage directory |
| | - | Oracle12c Release1 | JDBC driver storage directory |
| Solaris32/64 Linux32/64 Library path | - | Oracle11g Release2 | JDBC driver storage directory |
| | - | Oracle12c Release1 | JDBC driver storage directory |

Note 1) In Solaris/Linux, read "/" for "\".

Note 2) This value needs to be set only when the Oracle Universal Connection Pool (UCP) for the JDBC function is used.

Connection Pool Settings

Specify the following as the connection pool settings.

Specify the name of 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 | 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 (Note) - oracle.ucp.jdbc.PoolXADataSourceImpl (Note) |

Note) When using the Oracle Universal Connection Pool (UCP) for the JDBC function, specify oracle.ucp.jdbc.PoolDataSourceImpl or oracle.ucp.jdbc.PoolXADataSourceImpl.

Specify the name of the datasource class used for each resource type, as shown 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 (Note) | Specify one of the following: If the datasource class name is oracle.ucp.jdbc.PoolDataSourceImpl: - oracle.jdbc.pool.OracleDataSource If the datasource class name is oracle.ucp.jdbc.PoolXADataSourceImpl: - oracle.jdbc.xa.client.OracleXADataSource |

Note) When using the Oracle Universal Connection Pool (UCP) for the JDBC function, specify the property ConnectionFactoryClassName.



Note

Specify the user ID and password for the user name and password property names.

4.14.5 Symfoware JDBC Driver (Type2)

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.

Configuring Environment Variables

Configure the following environment settings.

For details on class path settings and path or library path settings, refer to "4.14.1 Setting the JDBC Driver Environment".

Windows32/64

| Setting | Value that is specified |
|------------|--|
| 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\fsymjdbc4.jar |

Solaris32

| Setting | Value that is specified |
|--------------|--|
| Library path | FSUNrdb2b installation directory/FSUNrdb2b/lib (Note) JDBC driver installation directory/FJSVsymjd/fjjdbc/bin (Note) |

| Setting | Value that is specified |
|------------|---|
| Class path | JDBC driver installation directory/FJSVsymjd/fjjdbc/lib/fjsymjdbc4.jar (Note) |

Linux32/64

| Setting | Value that is specified |
|--------------|---|
| Library path | FJSVrdb2b installation directory/FJSVrdb2b/lib (Note) JDBC driver installation directory/FJSVsymjd/fjjdbc/bin (Note) |
| Class path | JDBC driver installation directory/FJSVsymjd/fjjdbc/lib/fjsymjdbc4.jar (Note) |

(Note) 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 name of the datasource class that implements the interface as the resource type.

| Parameter | Value that is specified |
|-----------------------|---|
| Name | Any value |
| Resource type | Specify the following. - javax.sql.ConnectionPoolDataSource (Note) |
| Datasource class name | Specify the following. - com.fujitsu.symfoware.jdbc2.SYMConnectionPoolDataSource |

(Note) 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. When using Symfoware, use the Interstage pooling feature.

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. |

| Property name | Value |
|---------------|---|
| SYMOption | <p>The JDBC driver options are specified. The following options can be specified:</p> <ul style="list-style-type: none"> - lang - schema - ctuneparam - javaconverter - default_isolation - default_readonly - autotclosestatement - statementcache <p>For details on the values that are set for each option, refer to the JDBC driver manual. [Example of the SYMOption description] statementcache=36;ctuneparam='CLI_MAX_SQL=(255);CLI_WAIT_TIME=(30)' [Note] An empty character string cannot be specified for the value that is set for each option. 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. 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. 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 name of the data resource used for connection. This is mandatory. 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. The following options can be specified:</p> <ul style="list-style-type: none"> - lang - schema |

| Property name | Value |
|---------------|--|
| | <ul style="list-style-type: none"> - ctuneparam - 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] statementcache=36;ctuneparam='CLI_MAX_SQL=(255);CLI_WAIT_TIME=(30)'</p> <p>[Note] An empty character string cannot be specified for the value that is set for each option. Example: ctuneparam='CLI_MAX_SQL='</p> |

Settings for Connection to Symfoware Using RDB2_TCP



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

The system folder is the folder that has been set in the "SystemRoot" environment variable.

<system folder>\system32\drivers\etc\services

Solaris32 Linux32/64

/etc/services

Example

Assigning 2050 as the port number

RDBII 2050/TCP

4.14.6 Microsoft(R) SQL Server(TM) JDBC Driver (Type4)

The Microsoft(R) SQL Server(TM) JDBC driver is not bundled with Microsoft(R) SQL Server(TM). Download Microsoft SQL Server JDBC Driver from the Microsoft website and then install and use it.

Configuring Environment Variables

Configure the following environment settings.

For details on class path settings, refer to "4.14.1 Setting the JDBC Driver Environment".

| Setting | Driver version | Value that is specified (Note) |
|-----------|--|---|
| Classpath | Microsoft SQL Server JDBC Driver 3.0 | <Microsoft SQL Server JDBC Driver installation directory>\sqljdbc_<version>\<language>\sqljdbc4.jar |
| | Microsoft JDBC Driver 4.0 for SQL Server | |

Note)

<version>: Microsoft SQL Server JDBC Driver version (Example: 3.0 or 4.0)

<language>: This is the language that is used. For Japanese versions, use "jpn". For English versions, use "enu".

Connection Pool Settings

Specify the following as the connection pool settings.

Specify the name of the datasource class that implements the interface as the resource type.

| Parameter | Value that is specified |
|-----------|-------------------------|
| Name | Any value |

| Parameter | Value that is specified |
|-----------------------|---|
| Resource type | Specify one of the following. <ul style="list-style-type: none"> - javax.sql.DataSource - javax.sql.ConnectionPoolDataSource |
| Datasource class name | Specify one of the following. <ul style="list-style-type: none"> - com.microsoft.sqlserver.jdbc.SQLServerDataSource - com.microsoft.sqlserver.jdbc.SQLServerXADataSource |

Specify the name of the datasource class used for each resource type, as shown 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 | If the port number is changed from the default, specify the new port number. |

Note

If 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.

4.14.7 Ping Functionality

Ping functionality is provided in this product to check if 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:

- Executing the asadmin command ping-connection-pool subcommand.

Note

- In the Ping function, the getConnection method is executed for the datasource class to check if 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 6 DAS service.
- When the connection validation is valid and table is specified as the validation method, if the table specified in table name does not exist in the relevant database, the connection test will fail. Create the specified table beforehand, and execute.
- When a transaction isolation level not supported by the database is specified in the connection pool transaction isolation attributes, the connection test will fail. For details, refer to the JDBC driver manual.
- If the connection test fails, refer to the exception information after "Ping failed Exception -" and fix the cause of the exception. In particular, if an error occurs where the types of classes and libraries shown below are not found, or the combination of JDK/JRE and class file version is incorrect, review the class path or native library path settings to check if these settings are insufficient or invalid. For details on the JDK/JRE and JDBC driver version combinations, refer to each database manual.
 - java.lang.NoClassDefFoundError
 - no library name in java.library.path
 - Bad version number in .class file
- 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 6 DAS service may stop according to the OCI driver specs. If the Interstage Java EE 6 DAS service stops as a result of a mistaken execution, restart the service.
- When using the connection pool provided by the JDBC driver, if a connection test with the Ping function is successful, the connection will remain in the pool. To release connections left in the pool after executing the Ping function, restart the Interstage Java EE 6 DAS service.

4.15 JMS Operation Methods

The following are explained in this section:

Operating the message broker

Use the message broker to send and receive JMS messages.

The message broker can select operation modes. For details, refer to "[4.15.2 Message Broker Operation Modes](#)"

Also, the message broker operation methods differ depending upon the operation modes. For details on the REMOTE mode, refer to "[4.15.3 Message Broker Operations in REMOTE mode](#)", and for details on the EMBEDDED mode, refer to "[4.15.4 Message Broker Operations in EMBEDDED mode](#)".

Preparation for sending/receiving JMS messages

Create the JMS connection factories and JMS destination resources for sending and receiving JMS messages. For details, refer to "[4.15.5 Preparation for Sending/Receiving JMS Messages](#)".

Operating JMS

Use the JMS client application for sending and receiving JMS messages. For details, refer to "[4.15.6 Operating JMS Client Applications](#)".

Message broker log

Communication information is recorded for the message broker. For details, refer to "[4.15.7 Message Broker Log](#)".

4.15.1 Design Methods

Plan according to your JMS objectives.

- [To Perform Processing Automatically When Messages Arrive at their Destinations](#)
- [To Receive Messages That were Distributed While the JMS Client Application That Receives Messages in a Publish/Subscribe Messaging Model was Stopped](#)
- [To Prevent Loss of Messages Through Application Errors and System Downs](#)
- [To Perform Message Transaction Control](#)
- [To Acquire Messages That Satisfy Specific Conditions in Receive Applications](#)
- [To Display Messages That have Accumulated in a Queue at the Point-To-Point Messaging Model](#)
- [To Prioritize Reception of Specific Messages](#)
- [To Set Validity Periods for Messages](#)

To Perform Processing Automatically When Messages Arrive at their Destinations

`javax.jms.MessageListener` is used.

To Receive Messages That were Distributed While the JMS Client Application That Receives Messages in a Publish/Subscribe Messaging Model was Stopped

The JMS convention Durable Subscription function is used.

To Prevent Loss of Messages Through Application Errors and System Downs

The message persistence function is used.

Configure the persistence or non-persistence at the message delivery mode by using one of the APIs.

- Message delivery mode
 - persistence
`javax.jms.DeliveryMode.PERSISTENT` (default)
 - non-persistence
`javax.jms.DeliveryMode.NON_PERSISTENT`
- 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)`

To Perform Message Transaction Control

Web application or EJB application

Use the transaction management function using JTA.

Java EE application client or Java SE standalone application

Use the transaction management function provided by the resource manager.

There is a limit to the number of messages that can be sent or received in a single transaction. The default values are 1000 for send messages and 100 for receive messages.

To change the limit, configure the following properties:

- `imq.transaction.producer.maxNumMsgs`
- `imq.transaction.consumer.maxNumMsgs`

For details on the properties, refer to "[7.6.2 Routing Service Properties](#)".

To Acquire Messages That Satisfy Specific Conditions in Receive Applications

To use the message selector function, you must create the application as described below.

- Send application

During message creation, specify the property values that will be subject to the message selector.

Example

When setting "NAME" as the property name and "FUJITSU" as the property value:

```
javax.jms.Message = session.createMessage();
String name = "FUJITSU";
message.setStringProperty("NAME", name);
```

- Receive application

During creation of `javax.jms.MessageConsumer` and `javax.jms.QueueBrowser`, set message selector strings as parameters.

Example

When creating `javax.jms.MessageConsumer` to receive messages where the property name is "NAME" and the property value is "FUJITSU":

```
String selector = "NAME = 'FUJITSU'";
javax.jms.MessageConsumer consumer = session.createConsumer(destination, selector);
```

To Display Messages That have Accumulated in a Queue at the Point-To-Point Messaging Model

The JMS convention queue browser is used.

To Prioritize Reception of Specific Messages

Use the following APIs to prioritize send messages.

Priority levels can be set from 0 (low) to 9 (high). The default priority level is 4.

- `javax.jms.MessageProducer.setPriority(int priority)`
- `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)`

To Set Validity Periods for Messages

Use the following APIs to set validity periods (in milliseconds) for send messages. The default validity period is 0 (unrestricted).

- `javax.jms.MessageProducer.setTimeToLive(long timeToLive)`
- `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)`

4.15.2 Message Broker Operation Modes

When using JMS with the Interstage Java EE 6 DAS service, you can operate the message broker by using either of the following modes:

- REMOTE mode (default)
- EMBEDDED mode

Modifying the Operation Mode

When modifying the message broker operation mode, use the `asadmin set` subcommand and change the JMS service definition items of the Interstage Java EE 6 DAS service.

Change the type property to "REMOTE" or "EMBEDDED", and restart the Interstage Java EE 6 DAS service.

For details on the command, refer to "[9.1.4.2 set Subcommand](#)". For details on definition items, refer to "[7.7.10 JMS Service Definition Items](#)".

Note

- Use the EMBEDDED message broker mode as the running environment when developing applications. Perform system operation tests and system operations with the REMOTE message broker mode.
- When using the EMBEDDED message broker mode in the Interstage Java EE 6 DAS service, the default message broker instance name will be "imqbroker" and this cannot be changed. If the EMBEDDED message broker mode in the Interstage Java EE 6 DAS service and the REMOTE message broker mode in the IJServer cluster are used collectively, ensure that the instance name for the REMOTE message broker mode is not "imqbroker".

Example

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set server.jms-service.type=EMBEDDED
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin set server.jms-service.type=EMBEDDED
```

Checking the Operation Mode

To check the currently set operation mode, use the `asadmin get` subcommand.

For details on the command, refer to "[9.1.4.1 get Subcommand](#)".

Example

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin get server.jms-service.type
server.jms-service.type=EMBEDDED
Command get executed successfully.
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/bin/asadmin get server.jms-service.type
server.jms-service.type=EMBEDDED
Command get executed successfully.
```

4.15.3 Message Broker Operations in REMOTE mode

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 a JMS client application to send/receive messages to/from the physical storage destination, the message broker that manages it must be started.

The following methods are used to start the message broker:

- [Starting the message broker using the imqbrokerd command](#)
- [Starting the message broker as a service](#)

Starting the message broker using the imqbrokerd command

Use the imqbrokerd command to start the message broker. For detail, refer to "[9.5 imqbrokerd](#)".

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqbrokerd -name <message broker name> -port <port number>
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/mq/bin/imqbrokerd -name <message broker name> -port <port number>
```



Point

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 by using a command. However, to start it automatically when the OS starts, create it as a service by using the procedure described below.

Windows32/64

Registration

The `imqsvcadm` install subcommand registers a service. The message broker is registered as a service with the name "Interstage Message Queue Broker(ISJE6)". For details on the command, refer to ["9.7.1 install Subcommand"](#).

```
C:\Interstage\F3FMisje6\mq\bin\imqsvcadm install -args <message broker start argument>
```



Example

If the message broker instance name is "test" and the port number is set as "37676" to create the message broker service, the `imqsvcadm` command is executed as follows:

```
C:\Interstage\F3FMisje6\mq\bin\imqsvcadm install -args "-name test -port 37676"
```

Removal

The `imqsvcadm` remove subcommand removes 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 ["9.7.2 remove Subcommand"](#).

```
C:\Interstage\F3FMisje6\mq\bin\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 the new information.
- To set the service logon account, set an account that has administrator privileges.
- The service registration status and the information that was specified when the service was registered will not be subject to IJServer cluster backups and restores. During restores, execute again from the message broker service registration task if necessary.

Solaris32/64 Linux32/64

Registration

Perform this task as the root user.

1. Edit the rc script

The rc script ("ijmq") for creating services is provided in the directory below.

Storage destination

```
/opt/FJSVisje6/mq/etc/init.d
```

Copy the `ijmq` script to any location (the example below uses `/tmp` directory).

```
cp /opt/FJSVisje6/mq/etc/init.d/ijmq /tmp
```

Next, edit the following items in the `ijmq` file. Enclose the value to be set within double quotation marks ("").

BROKER_PORT

This is the port number 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, insert a halfwidth space between each option.

VM_ARGS

This is the VM options list that is passed to the JVM when the broker process starts. When multiple options are specified, insert a halfwidth space between each option.

Note

Do not directly edit the rc script ("ijmq"). Edit the file only after copying it to a location of your choice.

Only the above items should be edited, otherwise the rc script may not run correctly.

Example

The items described above are set as shown below.

```
#!/bin/sh
#
# ijqm:          Interstage Application Server
#
# Version:      @(#) /etc/rc.d/init.d/ijmq 1.0
#
# Author:       FUJITSU LIMITED
#
# chkconfig:   2345 97 3
# description: Interstage Application Server
# processname: imqbrokerd

# 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 created in step 1 to "0500", and then store it in /etc/init.d. To create or register multiple rc scripts, change the rc script file name and then register the rc script.

```
chmod 0500 /tmp/ijmq
mv /tmp/ijmq /etc/init.d/ijmq01
```

3. Register the service

Solaris32/64

Create a symbolic link in /etc/rc0.d, /etc/rc2.d.

```
ln -s /etc/init.d/ijmq01 /etc/rc0.d/K03ijmq01
ln -s /etc/init.d/ijmq01 /etc/rc2.d/S97ijmq01
```

Linux32/64

Register the service by using the chkconfig command.

```
/sbin/chkconfig --add ijqm01
```

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 created in /etc/rc0.d and /etc/rc2.d.

```
rm /etc/rc0.d/K03ijmq01
rm /etc/rc2.d/S97ijmq01
```

Linux32/64

Remove the service by using the chkconfig command.

```
/sbin/chkconfig --del ijmq01
```

3. Remove the rc script

Back up the rc script 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 required after Interstage is uninstalled must be removed.
- The rc script is not a target of IJServer cluster(Java EE) backup or 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 list svc subcommand. For details on the command, refer to "9.6.8 list svc Subcommand".

Example

When the message broker is running

"Successfully listed services." is output.

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd list svc -b localhost:17676
Username: admin
Password:
Listing all the services on the broker specified by:

-----
Host          Primary Port
-----
localhost    17676

-----
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

"C4003" is output.

```
/opt/FJSVisje6/mq/bin/imqcmd list svc -b localhost:17676
Username: admin
Password:
Listing all the services on the broker specified by:

-----
Host          Primary Port
-----
localhost    17676

2012/05/31 19:40:42 com.sun.messaging.jmq.jmsclient.ExceptionHandler throwConnectionException
WARNING: [C4003]: Error occurred on connection creation [localhost:17676]. - cause:
java.net.ConnectException: Connection
  refused: connect
Error while connecting to the broker on host 'localhost' and port '17676'.
com.sun.messaging.jms.JMSEException: [C4003]: Error occurred on connection creation [localhost:
17676]. - 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

- Name resolution (IP address resolution) of the host that starts the message broker must be enabled from the hosts file or the DNS settings.
DNS must be configured to run the network. If the network is not running using DNS, check the contents of the hosts file stored in the folder below, and edit the file as 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 services:
 - IJServer cluster
 - Interstage Java EE 6 DAS service

After starting the above services, refer to the logs for each and check if the following message has been output. If the message has been output, stop the above services and, after starting the message broker, start the services again.

```
[C4003]: Error occurred on connection creation [{0}:{1}]. - cause: java.net.ConnectException:
Connection refused: connect
```

- To configure an IJServer cluster or the Interstage Java EE 6 DAS service environment to use JMS, the following steps must be performed:
 1. Stop the IJServer cluster or the Interstage Java EE 6 DAS service.

2. Start the message broker.
3. Restart the IJServer cluster or the Interstage Java EE 6 DAS service.

If the restart is not executed, JMS cannot be used correctly.

- It may take a few minutes for the IJServer cluster or the Interstage Java EE 6 DAS service to start if:
 - JMS is used
 - Message broker has not started when the IJServer cluster or the Interstage Java EE 6 DAS service started
 - Multiple MDB applications have been deployed

The message broker has not started, so change the IJServer cluster startup wait time (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 shutdown bkr` subcommand to stop the message broker. Specify the host name and the port number used to run the stop target message broker. For details on the command, refer to "[9.6.20 shutdown bkr Subcommand](#)".

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd shutdown bkr -b localhost:17676
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd shutdown bkr -b localhost:17676
```

Stopping the Message Broker Temporarily

Use the `imqcmd pause bkr` subcommand 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 "[9.6.9 pause bkr Subcommand](#)".

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd pause bkr -b localhost:17676
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd pause bkr -b localhost:17676
```

Restarting the Message Broker

Use the `imqcmd resume bkr` subcommand 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 "[9.6.18 resume bkr Subcommand](#)".

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd resume bkr -b localhost:17676
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd resume bkr -b localhost:17676
```

Changing the Admin User Password

The admin username and password for the message broker are required when using the `imqcmd` command. For details on the admin username and password, refer to ["5.8.1 Users and groups"](#).

The admin user "admin" is created for the message broker by default. From a security perspective, the password for the admin user "admin" must be changed.

To change the password, use the `imqusermgr update` subcommand. For details on the command, refer to ["9.8.3 update Subcommand"](#).

Procedure

1. Start the message broker.
2. Change the password of the admin user "admin" by using the `imqusermgr update` subcommand.
3. Stop the IJServer cluster.
4. Stop the Interstage Java EE 6 DAS service.
5. Stop the message broker.
6. Start the message broker.
7. Start the Interstage Java EE 6 DAS service.
8. Start the IJServer cluster.

4.15.4 Message Broker Operations in EMBEDDED mode

The following processes are explained in this section:

- [Starting the Message Broker](#)
- [Stopping the Message Broker](#)
- [Changing the Admin User Password](#)
- [Changing the Port Number](#)
- [Memory Usage](#)

Starting the Message Broker

For a JMS client application to send/receive messages to/from the physical storage target, the message broker that manages it must be started. The message broker starts by linking with the Interstage Java EE 6 DAS service, therefore start the Interstage Java EE 6 DAS service. For details on the command to do this, refer to "asadmin", "Domain operations", ["9.1.6.1 start-domain Subcommand"](#) in the ["Chapter 9 Java EE 6 Operation Commands"](#) chapter.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin start-domain
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin start-domain
```

Notes on when the message broker starts

Name resolution (IP address resolution) of the host that starts the message broker must be enabled from the hosts file or the DNS settings. DNS must be configured to run the network. If the network is not running using DNS, check the contents of the hosts file stored in the folder below, and edit the file as 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
```

Stopping the Message Broker

Use the `asadmin` command to stop the message broker. The message broker stops by linking with the Interstage Java EE 6 DAS service, therefore stop the Interstage Java EE 6 DAS service. For details on the command, refer to "asadmin", "Domain operations", "9.1.6.3 stop-domain Subcommand" in the "Chapter 9 Java EE 6 Operation Commands" chapter.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin stop-domain
```

Solaris32/64 Linux32/64

```
/opt/FJJSvisje6/glassfish/bin/asadmin stop-domain
```

Changing the Admin User Password

The admin username and password for the message broker are required to use the `imqcmd` command. For details on the admin username and password, refer to "5.8.1 Users and groups".

The admin user "admin" is created for the message broker by default. From a security perspective, the password for the admin user "admin" password must be changed.

To change the password, use the `imqusermgr update` subcommand. For details on the command, refer to "9.8.3 update Subcommand".

Procedure

1. Start the Interstage Java EE 6 DAS service.
2. Change the password of the admin user "admin" by using the `imqusermgr update` subcommand.
3. Restart the Interstage Java EE 6 DAS service.



If the B3137 message is output when the `imqusermgr update` subcommand is executed, specify the `-init` option in the `imqbrokerd` command and create the message broker material.

Changing the Port Number

The JMS client application and message broker admin command communicate with the message broker. The default port number used in the communication is "17676".

To change the default port number, use the `asadmin set` subcommand to change the JMS service-related definitions. For details on this command, refer to "9.1.4.2 set Subcommand". For details on definition items, refer to "7.7.10 JMS Service Definition Items".

Procedure

1. Start the Interstage Java EE 6 DAS service.
2. Change the port number by using the `asadmin set` subcommand.

3. Restart the Interstage Java EE 6 DAS service.

Definition name

server-config.jms-service.jms-host.default_JMS_host.port

Example

Changing the default port number to "17677"

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set server-config.jms-service.jms-  
host.default_JMS_host.port=17677  
server-config.jms-service.jms-host.default_JMS_host.port=17677  
Command set executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin set server-config.jms-service.jms-  
host.default_JMS_host.port=17677  
server-config.jms-service.jms-host.default_JMS_host.port=17677  
Command set executed successfully.
```

To check the message broker port number that is currently set, use the asadmin command get subcommand. For details on this command, refer to "9.1.4.1 get Subcommand".

Example

Checking the message broker port number

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin get server-config.jms-service.jms-  
host.default_JMS_host.port  
server-config.jms-service.jms-host.default_JMS_host.port=17676  
Command get executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin get server-config.jms-service.jms-host.default_JMS_host.port  
server-config.jms-service.jms-host.default_JMS_host.port=17676  
Command get executed successfully.
```

Additionally, if the asadmin command set subcommand cannot be used, because the Interstage Java EE 6 DAS service cannot be started for example, use the following procedure to change the port number in domain.xml.

Procedure

1. Stop the Interstage Java EE 6 DAS service.
2. Change the port in the domain.xml <jms-host> element.

3. Start the Interstage Java EE 6 DAS service.

domain.xml storage destination

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\config\domain.xml
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/config/domain.xml
```

Location of corrections in domain.xml

```
<configs>
  <config name="server-config">

    ~Omitted~

    <jms-service type="EMBEDDED" default-jms-host="default_JMS_host">
      <jms-host name="default_JMS_host" host="localhost" port="17676"
        admin-user-name="admin" admin-password="admin" lazy-init="true"/>
    </jms-service>

    ~Omitted~

  </config>
  <config name="default-config">

    ~Omitted~

  </config>
</configs>
```

Changing the port number in domain.xml

In the <config name="server-config">, <jms-service>, <jms-host> element, replace the port value with the desired port number. If there is no port definition, then add one as shown in the example below (port="17677").



Example

Changing the default port number to "17677"

```
<jms-host name="default_JMS_host" host="localhost" port="17677"
  admin-user-name="admin" admin-password="admin" lazy-init="true"/>
```

Memory Usage

When the message broker is started in EMBEDDED mode, approximately 10 MB of memory is used up. Use the following formula to estimate the memory usage:

```
Memory usage (MB)=
10 + (Maximum number of messages that can accumulate in the physical storage destination x Maximum
size of a single message x 30)
```

Additionally, tune the Interstage Java EE 6 DAS service Java VM heap arena from the above memory usage if necessary. For details on tuning the Interstage Java EE 6 DAS service, refer to ["6.1.2 Java VM Heap and Permanent Area Size"](#).

4.15.5 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.

- The JMS resources ([JMS Connection Factory](#) and [JMS Send Destination Resources](#)) and physical storage destination are created.
The JMS connection factory and the JMS send destination resources are created according to the `asadmin` command `create-jms-resource` subcommand.
For details on creating the physical storage destination, refer to ["2.19.3 Physical Storage Destination Management"](#).
- The JMS host is set. 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 `asadmin` command to register, change, or delete the JMS connection factory `asadmin` (for details, refer to ["9.1 asadmin"](#) in the ["Java EE 6 Operation Commands"](#) chapter).

For details on the definition items that are required when the JMS connection factory are registered or changed, refer to ["7.5.3 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 range of the same transaction. If `"Shareable"` is specified in the `res-sharing-scope` element of the deployment descriptor, it will be defined as `"Unshareable"`.
 - When operating a JMS client application using the Publish/Subscribe messaging model on the IJServer cluster, `ClientId` must always be configured as an additional property of JMS Connection Factory.
-

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 `asadmin` command to register, change, or delete the JMS send destination resources (for details, refer to "9.1 `asadmin`" in the "Java EE 6 Operation Commands" chapter).

For details on the definition items that are required when the JMS send destination resources are registered or changed, refer to "7.5.4 JMS Send Destination Resource Definition Items".

JMS Host Settings

The JMS host specifies the system that the message broker runs on.

Use the `asadmin` command to set the JMS host. For details on the `asadmin` command, refer to "9.1.4 Subcommands - Category: Referencing/Updating Definition Items", in the "Java EE 6 Operation Commands" chapter.

For details on the definition items that are required for the setting, refer to "7.7.10 JMS Service Definition Items".

Relationship between JMS Resources and JMS Host

The message broker that sends or receives messages is determined according to the Interstage Java EE 6 DAS service or 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 retrieves the JMS host and connects to the message broker.



Note

For the JMS host, configure a host name or IP address for which the name can be resolved in the environment that the JMS client application runs in.

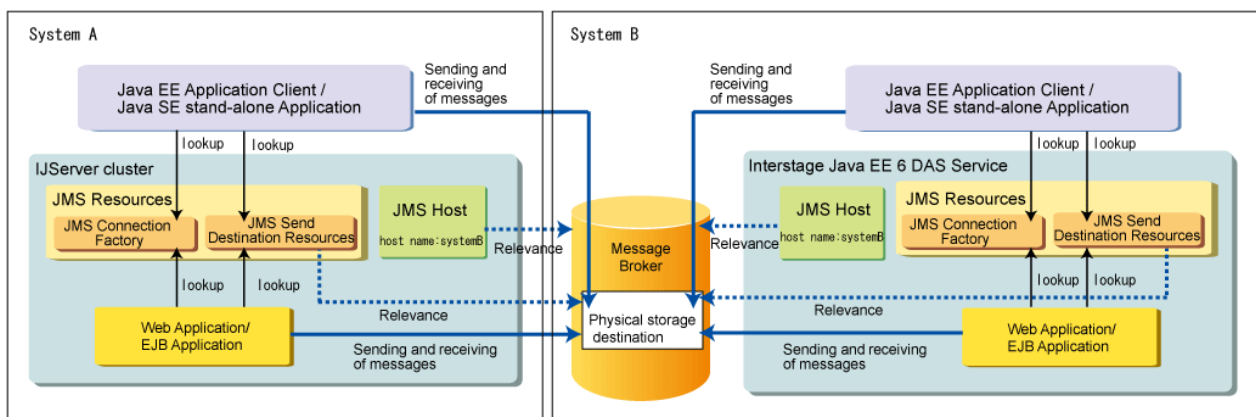
If "localhost" or "127.0.0.1" that indicates a local host is configured for the JMS host, there will be a connection to the message broker of the environment that the JMS client application runs in.



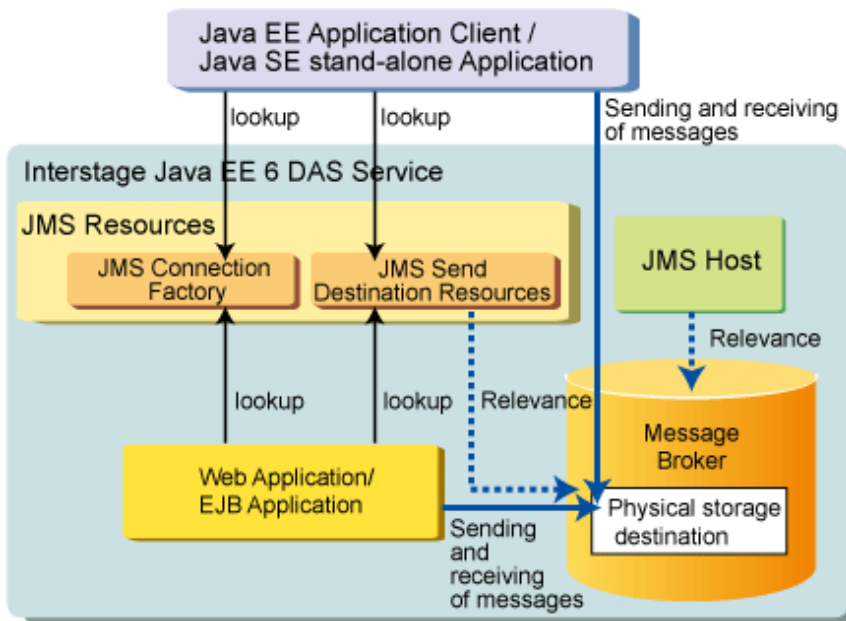
Example

A JMS client application usage example is shown below for each operation mode.

When the message broker is operated in REMOTE mode



When the message broker is operated in EMBEDDED mode



4.15.6 Operating JMS Client Applications

This section explains how to operate the JMS client application.

- Create JMS client applications in accordance with the JMS 1.1 specification.
- Use the following applications to operate the JMS client application:
 - Web application or EJB application
 - Java EE application client
 - Java SE standalone application
- Before using the JMS client application, perform the following operations:
 - Start the IJServer cluster
 - [Configure environment variables](#)
 - [Configure the settings when the initial context is generated](#)

Configure environment variables

The environment variables listed below should only be configured when using a Java SE standalone application.

Windows32/64

PATH environment variable

- JDK path (**Note**)

CLASSPATH environment variable

- C:\Interstage\F3FMisje6\glassfish\lib\gf-client.jar

Solaris32/64 Linux32/64

PATH environment variable

- JDK path (**Note**)

CLASSPATH environment variable

- /opt/FJSVisje6/glassfish/lib/gf-client.jar

Note)

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, 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 "3.2.1.5 Interstage ACC deployment descriptor (sun-acc.xml)".

When using a Java SE standalone 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 | Explanation |
|--------------------------------|-----------------------|--|
| 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) host1:29700 |

 **Example**

To configure this setting in the Java VM option, configure the system property as follows:

```
-Dcom.sun.appserv.iiop.endpoints=host1:29700
```

4.15.7 Message Broker Log

The message broker records message broker information as a log. The message broker log is useful for message broker investigation and status monitoring.

Output Destination

The log output destination is as follows:

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\imq\instances\${ message broker name }\log
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/imq/instances/${ message broker name }/log
```

Log File Name

- log.txt
- log_N.txt (N is an integer between 1 and 9)

A maximum of 10 log files (log.txt, log_1.txt to log_9.txt) will be created.

Log Settings

The settings described below can be changed.

Settings for logging dead messages

Specify whether to write information related to dead messages to the log. By default, information related to dead messages is not written to the log.

Conditions for rotation

Log files rotate according to the condition specified for "Log size" or "Validity period". By default, log files rotate at the point where either condition is satisfied.

The items below can be set for rotation.

Rotation according to the log size

Specify the maximum size of the log file. The default value is 256 MB.

The log files are rotated when the specified size is reached.

Rotation according to the 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. However, if no log is output, the log files are not rotated even when the specified time is exceeded.

The log settings are configured by using the log function property in the imqbrokerd command.

For details on the log function property, refer to "[7.6.6 Log Function Properties](#)".

Output Format

The format of the log that is output is as follows:

```
[dd/MM/yyyy:HH:mm:ss z] log body
```

Each output item is explained below.

dd/MM/yyyy:HH:mm:ss z

The log output time is output.

Log body

For details on the log body message content, refer to "[Chapter 10 Java EE 6 Messages](#)".

4.16 Connector Operation Method

The operation method for using the connector is explained in this section.

4.16.1 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 asadmin command.

- Outbound resource adapter

1. Deploy the connector module contained in the standalone 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 standalone or ear module
2. Set the application that is used for receiving data (message-driven bean)
For details, refer to "[2.9.2 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 `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 the connector connection pool items that can be tuned
Refer to "[6.9 Connector Tuning](#)".
- Items that can be specified using the `asadmin` command connector-related subcommands/`set` subcommand
Refer to "[9.1 asadmin](#)" in the "Java EE 6 Operation Commands" chapter.

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 JJSERVER 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 "[4.5 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 standalone deployment and deployment with the ear module are different (this can only be specified by a user that shares the application name).

- When standalone 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 thread pool identifier. It is used when the user specifies the thread pool used by `WorkManager`. If this is not specified, the default thread pool will be used.

Creating the resource adapter definition information

As shown below, the methods to specify standalone deployment and deployment with the ear module are different.

- When standalone deployment is used:
This is created using the `asadmin` command `create-resource-adapter-config` subcommand.

- When deployment with the ear module is used:
This can be created after the deployment, using the asadmin command 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 6 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
- Name of the IJServer cluster that can reference connector resources

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)
- Name of the IJServer cluster that can reference management object resources
- Additional properties

Connector Environment Settings

For details on how to run a connector that uses native libraries, refer to "[2.22.6 Notes About Using the Class Loader](#)", "[Note on Using Connectors](#)", and then configure the environment settings.



Note

Built-in resource adapters

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.

4.16.2 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 `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 standalone or ear module

Cascade Option

The 'cascade' option is an option for the deletion of related resources in batch. 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 standalone connector module or connector module containing the ear 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.



The connector module contained in ear can be undeployed without resources being deleted, regardless of whether or not the cascade option is specified. If redeploying the same module when inheriting resources that have already been created, specify identical resource adapter names when deploying the module. Additionally, when inheriting management object resources, configure the resource adapter name after redeploying.

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.

4.17 Java EE Application Logs

Server Log/Java VM Log/HTTP Access Log/HTTP Trace Log

Java EE provides the logs listed below, which are useful for troubleshooting:

Interstage Java EE 6 DAS service

- [Server log](#)
- [Java VM log](#)
- [HTTP access log](#)
- [HTTP trace log](#)

IJServer cluster

- [Server log](#)
- [Java VM log](#)
- [HTTP access log](#)

- FJVM log

For details on FJVM log, refer to the "Tuning Guide", section "JDK/JRE Tuning", "FJVM", "FJVM Log".

- [HTTP trace log](#)

Log file rotation

The log files can be rotated.



- For details on log file rotation, refer to "[4.17.5 Log File Rotation](#)".
- There is no explanation of message broker logs in this section. For details, refer to "[4.15.7 Message Broker Log](#)".

Event Log/System Log

Parts of command process messages or PCMI service messages are output to the event log or the system log. The specifications for the event log and the system log comply with the output rules for each operating system.

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 standalone clients

When a Java SE standalone application is operated on a standalone 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

4.17.1 Server Log

File Name

server.log

Log File Directory

Interstage Java EE 6 DAS service

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\logs
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/logs
```

IJServer cluster

Windows32/64

```
[Java EE 6 common directory]\nodes\localhost-domain1<server instance name>\logs
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/nodes/localhost-domain1<server instance name>/logs
```

Changing the log file directory

The log file directory can be changed using the `asadmin set-log-attributes` subcommand.

For details on how to modify, refer to "[Specification Method](#)".

Output Contents

Interstage Java EE 6 DAS service

Information about Java EE 6-related operations, such as the creation of IJServer clusters and the deployment of applications.

Standard output for applications deployed to the Interstage Java EE 6 DAS service, standard error output, and information output by each Java EE component provided in Interstage are all output.

IJServer cluster

Standard output for applications deployed to the IJServer cluster, standard error output, and information output by each Java EE 6 component provided in Interstage.

Specs

- The log file is created when the process starts. If a file with the same name exists, this is also output.
- If there are no write privileges, an error message is output to the event log or the system log, and the Interstage Java EE 6 DAS service or the IJServer cluster startup fails.

Solaris32/64 Linux32/64

For details on execution by general users, refer to "[9.4 ij6setoperatorid](#)".

- If a log file cannot be created in the directory specified in the Interstage Java EE 6 DAS service log output directory, the Interstage Java EE 6 DAS service will fail to start.

In such cases, delete the files given below and then start the Interstage Java EE 6 DAS service.

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\config\logging.properties
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/config/logging.properties
```

However, if the above files are deleted, log attributes configured with the logger definition item or the set-log-attributes subcommand will all be returned to the default values.

- Instead of the character string such as "<",">", a sanitized character string may be output.

Examples of sanitized character strings:

| | |
|---|--------|
| < | < |
| > | > |
| & | & |
| " | " |

Specification Method

The server log settings can be changed using the set-log-attributes subcommand of the asadmin command.

- Rotation settings
The rotation type and other settings can be set. Refer to "[4.17.5 Log File Rotation](#)".
- Log output directory
The output destination of the log file can be changed.

For details, refer to "[7.7.11 Logger Definition Items](#)", "[9.1.19.1 set-log-attributes Subcommand](#)".

Output Format

```
[#|yyyy-MM-ddTHH:mm:ss.msTZD|LOG_LEVEL||_ThreadID=thread ID;_ThreadName=thread name;|message|#]
```

LOG_LEVEL:

- SEVERE : Error
- WARNING
- INFO
- CONFIG : Static configuration message
- FINE : Trace
- FINER : Detailed trace
- FINEST : Extremely detailed trace

Output Example

```
[#|2012-12-10T07:50:54.151+0900|INFO||_ThreadID=1;_ThreadName=Thread-2;|WEB0171: Created virtual server [server]|#]
```

4.17.2 Java VM Log

File Name

console.log

Log File Directory

Interstage Java EE 6 DAS service

Windows32/64

```
[Java EE 6 common directory]\pcmi\isje6\logs\server
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]\pcmi\isje6/logs/server
```

Server Instance

Windows32/64

```
[Java EE 6 common directory]\pcmi\isje6/logs\
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]\pcmi\isje6/logs\
```



Note

The Java VM log output destination cannot be changed.

Output Contents

Shared among processes (Interstage Java EE 6 DAS service/server instance)

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. If a file with the same name exists, this is also output.
- If there are no write privileges when the process started, an error message PCMI1302 is output to the event log/system log and fails to start.

Solaris32/64 Linux32/64

For details on execution of processes by general users, refer to "[9.4 ij6setoperatorid](#)".

Specification Method

The Java VM log settings can be changed in the PCMI profile.

- Rotation settings
The rotation type and other settings can be set. Refer to "[4.17.5 Log File Rotation](#)".

Status Information for When the Java VM Shuts Down

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.



Note

Although this information is also output during normal shutdown caused by forced shutdown, there is no need to take any action if it is output during a normal shutdown.



Example

An example of the output for when shuts down normally

```

#### JavaVM terminated: Java HotSpot(TM) 64-Bit Server VM (23.5.02_FUJITSU_MODIFIED-B04_NPTL mixed
mode),
[pid=6322] TimeMillis=1365145628081 Time=Fri Apr 5 16:07:08 2013

Thread dump at JVM_Halt(status code=0):
Thread-31 daemon prio=10 tid=0x00007fdcac099000 nid=0x1922 runnable [0x00007fd95462000]
  java.lang.Thread.State: RUNNABLE
    at java.lang.Shutdown.halt0(Native Method)
    at java.lang.Shutdown.halt(Shutdown.java:139)
    - locked <0x00000000e008c340> (a java.lang.Shutdown$Lock)
    at java.lang.Shutdown.exit(Shutdown.java:213)
    - locked <0x00000000e008c2a8> (a java.lang.Class for java.lang.Shutdown)
    at java.lang.Runtime.exit(Runtime.java:107)
    at java.lang.System.exit(System.java:960)
    at com.sun.enterprise.v3.admin.StopServer.doExecute(StopServer.java:79)
    at
com.sun.enterprise.v3.admin.cluster.StopInstanceInstanceCommand.execute(StopInstanceInstanceCommand.
java:94)
    at com.sun.enterprise.v3.admin.CommandRunnerImpl$1.execute(CommandRunnerImpl.java:348)
    at com.sun.enterprise.v3.admin.CommandRunnerImpl$2.run(CommandRunnerImpl.java:377)

```



See

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"

4.17.3 HTTP Access Log

File Name

server_access_log.txt

Log File Directory

Interstage Java EE 6 DAS service

Windows32/64

[Java EE 6 common directory]\domains\domain1\logs\access

Solaris32/64 Linux32/64

[Java EE 6 common directory]/domains/domain1/logs/access

IJServer cluster

Windows32/64

[Java EE 6 common directory]\nodes\localhost-domain1<server instance name>\logs\access

Solaris32/64 Linux32/64

[Java EE 6 common directory]/nodes/localhost-domain1/<server instance name>/logs/access

Changing the log file directory

The log output destination directory for the HTTP access log can be changed by configuring the HTTP service definition items using the set subcommand of the asadmin command. For details on how to modify, refer to ["Setting Method"](#).

Output Contents

Communication information is output for the HTTP service.

Specs

- When the settings have been configured to output the HTTP access log, the HTTP access log file is created. For information on the setting method, refer to ["Setting Method"](#).
- 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.

```
"192.0.2.237" "-" "userA" "07/May/2013:17:47:32 +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" "192.0.2.237:8080"
"mgQgmJgJnorrSaiSC13sv8BgGDmH3df6jQzFV61miwC0ct6-6ebf4mknD4csfdeXQk3EeCjEd0Jv-B9Gw0004" "15"
"ThreadID=174" "ThreadName=http-thread-pool-28292(5)" "192.0.2.237"
```

- `__asadmin_access_log.txt`, that is output to the same directory, is an HTTP access log for managed applications.
- If there are no write privileges, a WARNING message is output to the event log or the system log (**Note**). In this case, the HTTP access log is not output.

Note)

Solaris32/64 Linux32/64

This is the behavior when a general user executes the IJServer cluster.

For details on execution of IJServer clusters by general users, refer to ["9.4 ij6setoperatorid"](#).

Setting Method

The following HTTP access log settings can be changed using the asadmin set subcommand.

- Enabling the access log
Specify whether to enable (true) or disable (false) the HTTP access log output.
- Format
Specify items to be output to the access log.
- Rotation
Select the rotation method for the HTTP access log. Refer to ["4.17.5 Log File Rotation"](#).
- Log output directory
You can change the output destination of the log file.

For details, refer to ["9.1 asadmin"](#), ["7.7.2 HTTP Service Definition Items"](#).

Output Format

The output format for the HTTP access log 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.
- 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 spaces are specified in this format, the following values will be set:

| |
|--|
| %client.name% %auth-user-name% %datetime% %request% %status% %response.length% |
|--|

- 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 items that can be specified, refer to the following table.

Request information

| Item name | Explanation | Default value |
|----------------------|--|---------------|
| %client.name% | Outputs the IP address/host name 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 Outputs the user name authenticated by the web server. - For operations where communications do not pass through a web server Outputs the user name authenticated by the web container. If a user name has not been assigned to the request, "-" will be displayed. | 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% | Outputs the time taken (in milliseconds) from when request processing started until web application processing finished. The following time is also included. <ul style="list-style-type: none"> - Compiling the JSP the first time it is accessed, loading classes, and servlet initialization processing. | Yes |
| %thread.id% | Outputs the thread ID. | Yes |
| %thread.name% | Outputs the thread name. | Yes |
| %webserver.name% | <ul style="list-style-type: none"> - For operations where communications pass through a web server Outputs 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 uppercase and lowercase letters. | |

| Item name | Explanation | Default value |
|-------------------------------|--|---------------|
| %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 lowercase 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 response HTTP header value. For "any", specify any valid value for the response HTTP header as defined in RFC2616, using lowercase characters. | |
| %response.headers.set-cookie% | Outputs the content of the Set-Cookie header at the time of the response. | |
| %http-method% | Outputs the HTTP method. | |
| %http-uri% | Outputs the URI. | |
| %http-version% | Outputs the protocol version. | |
| %query-str% | Outputs the query string. | |

Output Example

The values specified in the output format are output separated by spaces.

```
"192.0.2.237" "-" "userA" "07/May/2013:17:47:32 +0900" "POST /web/ HTTP/1.1" "200" "1635" "192.0.2.237:8080"
"mgQgmJgJnorrsaiSC13sv8BgGDmH3df6jQzFV61miwC0ct6-6ebf4mknD4csfdeXQk3EeCjEd0Jv-B9Gw0004" "15"
"ThreadID=174" "ThreadName=http-thread-pool-28292(5)" "192.0.2.237"
```

Note

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.

4.17.4 HTTP Trace Log

File Name

trace.log

Log File Directory

Interstage Java EE 6 DAS service

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\logs\http
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/logs/http
```

IJServer cluster

Windows32/64

```
[Java EE 6 common directory]\nodes\localhost-domain1<server instance name>\logs\http
```

Solaris32/64 **Linux32/64**

```
[Java EE 6 common directory]/nodes/localhost-domain1/<server instance name>/logs/http
```

Changing the log file directory

The log output destination directory for the HTTP trace log can be changed by configuring the HTTP service definition items using the set subcommand of the asadmin command. For details on how to modify, refer to "[Setting Method](#)".

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 the HTTP trace log, the HTTP trace log file is created. If a file with the same name already exists, the new content is appended to this file.
- If the process that writes information to this log or rotates this log fails, an error message will be output to the server log.

Setting Method

The following HTTP trace log settings can be changed using the asadmin command.

- Enabling the trace log
Specify whether to enable (true) or disable (false) output of the HTTP trace log.
- Rotation
Specify "Log size" and "Number of generations". Refer to "[4.17.5 Log File Rotation](#)".
- Log output directory for trace log
You can change the output destination of the log file.

For details, refer to "[7.7.2 HTTP Service Definition Items](#)", "[9.1 asadmin](#)".

Output Format

The format of the HTTP trace log is as follows:

```
"date/time" "thread ID (thread name)" "event" "detailed information"
```

Date/time

Date and time when the HTTP trace log was output

Thread ID

Thread ID of the processing thread

Thread name

Thread name of the processing thread

Event

Event name that indicates the output timing

Detailed information

The following table shows the output content for each output timing.

| Timing for the output | Event | Detail |
|--|-------|---|
| Immediately after accepting TCP connection | conn | Client IP address, port number (Note 1) |

| Timing for the output | Event | Detail |
|--|-------------|---|
| Immediately after TCP disconnection | disc | Client IP address, port number (Note 1) |
| Immediately after receiving HTTP request | recv | Request line |
| Immediately after sending HTTP response | send | Status code |
| Immediately before calling the web container | call | None |
| Immediately after the web container returns | rtn | None |
| Immediately before insertion of task into the thread pool queue | qin | Client IP address, port number (Note 1) |
| When the thread pool queue overflow occurs | q-overflow | Client IP address, port number (Note 1) |
| Immediately after retrieval from the thread pool queue | qout | Client IP address, port number (Note 1) |
| Immediately after start of the keep alive waiting mode | k-wt | Client IP address, port number (Note 1) |
| Immediately after migration of the web container to the asynchronous processing mode | async-start | None |
| Immediately after start of the web container asynchronous processing | async-call | Client IP address, port number (Note 1) Request URI (Note 2) |
| Immediately before end of the web container asynchronous processing | async-rtn | None |

Note 1) "Client" refers to the web browser or proxy server, for example.

Note 2) The "async-start" detail is not output if the following Servlet API was called in the web application:

- javax.servlet.AsyncContext#dispatch(javax.servlet.ServletContext, java.lang.String)
- javax.servlet.AsyncContext#dispatch(java.lang.String)

Note

- If HTTP trace log output is enabled, performance will be affected. The degree of impact will depend on factors such as the application, the environment, the operation, the number of concurrent processes, load, and so on.
- In future, the output timings and output content may change as a result of functionality being added or other improvements. For this reason, try to avoid operations that are dependent on the output content.

Output Example

An output example is shown below.

```
"11/Mar/2013:20:50:29.531" "23(Grizzly-kernel-thread(1))" "conn" "192.0.2.0:57641"
"11/Mar/2013:20:50:29.531" "23(Grizzly-kernel-thread(1))" "qin" "192.0.2.0:57641"
"11/Mar/2013:20:50:29.531" "83(http-thread-pool-28282(1))" "qout" "192.0.2.0:57641"
"11/Mar/2013:20:50:29.531" "83(http-thread-pool-28282(1))" "recv" "GET /AsyncTest/dispatch HTTP/1.1"
"11/Mar/2013:20:50:29.531" "83(http-thread-pool-28282(1))" "call"
"11/Mar/2013:20:50:29.531" "83(http-thread-pool-28282(1))" "async-start"
"11/Mar/2013:20:50:29.532" "83(http-thread-pool-28282(1))" "rtn"
```

```
"11/Mar/2013:20:50:29.532" "144(glassfish-web-async-thread-4)" "async-call" "/192.0.2.0:57641 /hello"  
"11/Mar/2013:20:50:29.533" "144(glassfish-web-async-thread-4)" "send" "200" "192.0.2.0:57641"  
"11/Mar/2013:20:50:29.534" "23(Grizzly-kernel-thread(1))" "k-wt" "192.0.2.0:57641"  
"11/Mar/2013:20:50:29.534" "144(glassfish-web-async-thread-4)" "async-rtn"  
"11/Mar/2013:20:51:00.531" "23(Grizzly-kernel-thread(1))" "disc" "192.0.2.0:57641"
```

4.17.5 Log File Rotation



Note

When rotation based on time has been selected and nothing is output to a new, empty (0 KB) log file created by rotation in the period until the next rotation, then that log file will be rotated and saved as is with 0 KB.

Server Log

The server log files can be rotated. Specify the condition for rotation as either "Log size" or "Time". The default is "Log size". When rotation occurs, the log file will be saved with the time when the rotation was performed appended to the file name.

```
server.log_YYYY-MM-DD'T'hh-mm-ss
```

For example, if the maximum log size specified is reached at 15:23:30 on 7 Jan 2012, the server log will be saved with the following file name:

```
server.log_2012-01-07T15-23-30
```

Note that when rotation is executed within 1 second of the previous rotation, a sequence number will be appended to the file name.

```
server.log_YYYY-MM-DD'T'hh-mm-ss.<sequence number>
```

The following items can be set for rotation:

Rotation type

Specify the rotation method for the server log.

Log size

Specify the maximum size of the log file from 1048576 to 536870912 bytes. The default is 1048576. The log file is rotated when the specified size is reached.

Log collection time

Specify the time at which the server log is rotated. Logs are rotated every day at the specified time. The default is 0.

Number of generations

Specify the maximum number of generations of the log file to be stored, from 1 to 999.

If the number of generations stored exceeds the maximum value specified, the oldest generation of the log file is deleted. The default value is 1 (generation).

These items can be changed using the `asadmin` command:

- The `asadmin` command `set-log-attributes` subcommand

For details on the items that are set, refer to "[9.1.19.1 set-log-attributes Subcommand](#)" and "[7.7.11 Logger Definition Items](#)".



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, do not create files with the same naming format as the file name of the rotated file.

Java VM Log

The Java VM log files can be rotated. Specify the condition for rotation as either "Log size" or "Time". The default is "Log size". If the specified condition is met, the log will be saved with the time when the rotation was performed appended to the file name as follows:

```
console.log_YYYY_MM_DD-hh_mm_ss
```

When rotation is executed within 1 second of the previous rotation, a sequence number will be appended to the file name.

```
console.log_YYYY_MM_DD-hh_mm_ss.<sequence number>
```

Note that the following messages will be output to the event log or the system log during rotation processing or failure:

- During rotation processing: information messages
- During rotation processing failure: error messages

The following items can be set for rotation:

Rotation type

Specify the rotation method for the Java VM log.

Log size

Specify the maximum size of the log file from 1 MB to 512 MB. The default is 1 MB. The log file is rotated when the specified size is reached.

Log collection time

Specify the rotation start time from 0 to 23 hours. The default is 0. Rotation is performed at the specified time.

Number of generations

Specify the number of generations to archive the rotated log file, from 1 to 100.

If the number of log files to be archived exceeds the number of generations that were specified, the oldest generation of the log file is deleted. The default is 1 (generation).

The above settings can be changed by changing the PCMI profile. For details, refer to "[4.2.7 Changing the Settings](#)".

HTTP Access Log

The HTTP access log files can be rotated. Specify the condition for rotation as "Log size", "Log collection time", or "One-day intervals from startup".

When rotation occurs, the log file will be saved with the time when the rotation was performed appended to the file name.

```
server_access_log_YYYY_MM_DD-hh_mm_ss.txt
```

When rotation is executed within 1 second of the previous rotation, a sequence number will be appended to the file name.

```
server_access_log_YYYY_MM_DD-hh_mm_ss.txt.<sequence number>
```

The following items can be set for rotation:

Rotation type

Specify the rotation method for the HTTP access log.

Log size

Specify the maximum size of the log file from 1 MB to 512 MB. The default value is 1 MB.

The log file is rotated when the specified size is reached.

Log collection time

Specify the rotation start time from 0 to 23 hours. The default value is 0.

Rotation is performed at the specified time.

One-day intervals from startup

Rotation is performed at the time of the first HTTP access log output after a day has passed from either the startup or the previous rotation.

Number of generations

Specify the maximum number of generations of the log file to be stored, from 1 to 999.

If the number of generations stored exceeds the maximum value specified, the oldest generation of the log file is deleted. The default value is 5 (generations).

These items can be changed using the `asadmin` command:

For details on the items that are set, refer to "[7.7.2 HTTP Service Definition Items](#)".

Note

- If the rotation type is "One-day intervals from startup", and if the Interstage Java EE 6 DAS service is restarted or the settings are changed, the log file that was rotated will not be deleted, so delete it manually.
- If the rotation type is "Log size" or "Log collection time", and if the number of generations has been reduced, the log file is deleted at the next rotation, according to the number of generations configured.
- After the rotation time elapses, rotation will occur when the initial log is output.

HTTP Trace Log

The HTTP trace log files rotate when the maximum log size specified is reached.

The following items can be set for rotation:

Log size

Specify the maximum size of the log file from 1 to 2000 MB. The default is 10 MB.

The log file is rotated when the specified size is reached.

When rotation occurs, the log file will be saved with the time when the rotation was performed appended to the file name.

```
trace.log_YYYY_MM_DD-hh_mm_ss
```

When rotation is executed within 1 second of the previous rotation, a sequence number will be appended to the file name.

```
trace.log_YYYY_MM_DD-hh_mm_ss.sequence number
```

Number of generations

Specify the maximum number of generations of the log file to be stored, from 1 and 999.

If the number of generations stored exceeds the maximum value specified, the oldest generation of the log file is deleted. The default value is 10 (generations).

These items can be changed using the `asadmin` command.

For details on the items that are set, refer to "[7.7.2 HTTP Service Definition Items](#)".

Note

- If the HTTP trace log settings were changed, restart IJServer cluster or the Interstage Java EE 6 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 the HTTP trace log, do not create files with the same naming format as the file name of the rotated file.
- If the HTTP trace log settings were changed using the `asadmin` command `set` subcommand, check that error messages have not been output to the server log after restarting IJServer cluster or the Interstage Java EE 6 DAS service.

4.17.6 Notes on when the Log is Output from the Application

Logs can be output using the Java logging API from an application.

To check or change the log definition that is output from the application using Java logging API, the following subcommands must be used:

- "`list-log-attributes` Subcommand"
- "`set-log-attributes` Subcommand"
- "`delete-log-attributes` Subcommand"
- "`list-log-levels` Subcommand"
- "`set-log-levels` Subcommand"
- "`delete-log-levels` Subcommand"

Note

- Do not configure the Interstage Java EE 6 DAS service or the IJServer cluster with the following system properties:
 - `java.util.logging.manager`
 - `java.util.logging.config.class`
 - `java.util.logging.config.file`
- Do not use the following Java logging APIs with an application:
 - `java.util.logging.LogManager#readConfiguration()`
 - `java.util.logging.LogManager#readConfiguration(InputStream ins)`
 - `java.util.logging.LogManager#reset()`

When the logger to be used by an application has been specified, output to the server log is performed simultaneously with log output from the application by default. If you do not want to output to the server log, configure the following attribute with the `set-log-attributes` subcommand.

```
<logger>.useParentHandlers=false
```

In `<logger>`, enter the logger name specified in the application.

Using Custom Log Handlers or Log Formatters in Applications

Use the following procedure:

1. Add jar files that contain the custom log handler or the log formatter class to the following system extension directories. For details on system extension directories, refer to "System extension directories" in ["2.22.4 Settings for classes used in Interstage Java EE 6"](#).

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\lib\ext
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/lib/ext
```

2. Change the update date and time for domain.xml to the current time. For details, refer to ["2.1.4 Repository Synchronization"](#).

Deleting Custom Log Handlers or Log Formatters

Use the following procedure:

1. If the application using the custom log handler or log formatter has been deployed to an IJServer cluster, stop that IJServer cluster.
2. Stop the Interstage Java EE 6 DAS service.
3. Delete the jar files that contain the custom log handler or log formatter class from the following system extension directories:

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\lib\ext
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/lib/ext
```

4. Change the update date and time for domain.xml to the current time. For details, refer to ["2.1.4 Repository Synchronization"](#).

4.18 Operations where Enterprise JavaBeans are Accessed

There are two types of Enterprise JavaBeans:

- Session beans
- Message-driven beans

This section explains the environment settings required to access each type of Enterprise JavaBean deployed to either an IJServer cluster or the Interstage Java EE 6 DAS service.

4.18.1 Accessing Session Beans

Session beans process requests from the calling application synchronously. If a local interface (such as an interface with the `@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 the `@Remote` annotation defined) is used, Enterprise JavaBeans can be called from remote machines via IIOP 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 described 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 standalone applications
6. J2EE runtime environment (IJServer) applications

Functions that can be Used

The following table shows the functions that can be used with each type of caller. "Yes" indicates that the function 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 standalone 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 | - | - | - | - | - |

These 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" to hide the IOP communication processing. This stub is referred to as a "dynamic stub" because it is generated dynamically based on the interface information. (With J2EE, stubs were generated at deployment, 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 as long as it can look up the interface.

- 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 IOP 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 IOP 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, the 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 (glassfish-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 "[3.2.1 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 standalone applications | J2EE runtime environment (JServer) applications |
|------------------------------------|--|---|---|-----------------------------|---------------------------------|---|
| Client stub JAR file | - | - | - | R | - | - |
| JNDI environment variable settings | - | - | - | - | R | R |

| 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 standalone applications | J2EE runtime environment (JServer) applications |
|---------------------------------|--|---|---|-----------------------------|---------------------------------|---|
| 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 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 standalone application or a J2EE runtime environment (JServer) 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 as long as the remote interface can be looked up from the application.

The classes of an Enterprise JavaBean (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 a remote interface, so that the EJB can be looked up by the calling application. For details on the setting method, refer to "[2.22 Class Loader](#)".



Note

In EJB 3.x or later, bundle the remote interface of the call destination with the caller application.

- 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 rule of the Interoperable Naming Service (INS). 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 standalone applications and J2EE runtime environment (JServer) applications, set up connection destinations by specifying "com.sun.appserv.iiop.endpoints" in the system property for the Java VM. For details, refer to "[4.18.3 Settings for the Client \(the Caller\)](#)".

4.18.2 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 differences in the behavior as a result of differences in the caller.

4.18.3 Settings for the Client (the Caller)

This section explains the settings for the client that calls EJB applications.

Settings for the IJServer Cluster

The rules of the Interoperable Naming Service (INS) can be used to specify the host name, the IIOP listener port number, and the 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 the FQDN format or an IPv4 IP address, and the IIOP listener port number for the "port" attribute.



Example

```
<client-container>
  <target-server name="server1" address="host1" port="29700" />
</client-container>
```

Settings for Standalone Clients

Specify the following settings for endpoint specifications. To specify this property, specify the same value for applications that run in the same process. You cannot specify different values for applications on the same server instance, or 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.iop.endpoints | List of host names and port numbers | Use the following format to specify the host names and IIOP communication port numbers for server instances where the EJB application runs. <host name>:<port number> Example: host1:29700 The default value is "localhost:23610". |



Example

```
-Dcom.sun.appserv.iop.loadbalancingpolicy=disable
-Dcom.sun.appserv.iop.endpoints=host1:29700
```

Chapter 5 Java EE 6 Security

This chapter explains the security features of Java EE 6.

5.1 Security Measures for Java EE

The services alone cannot completely protect resources from security attacks. For this reason, you should also take operational measures to increase safety.

Unauthorized Access to Server Resources

When the application is accessed from a web browser, there is a threat that a malicious user on the network will impersonate another user and assume valid access permissions and be able to access Servlet applications or HTML files.

To prevent unauthorized access to server resources, Java EE 6 includes a number of security features. For details, refer to the following sections of this chapter.

Eavesdropping/Tampering with Communication Data

There is a threat that a malicious user on the network will intercept and look at data transmitted between a user with valid access permissions and the server. There is also a threat that the data exchanged with the server may be tampered with and used as valid communication data.

To prevent the eavesdropping and tampering of communication data, secure data transmission through encryption is required. Java EE 6 supports SSL to provide encrypted communication.

When using SSL, use safe algorithms with a security key that is sufficiently long.

For details, refer to "[5.3 Java EE 6 Application Security Functionality](#)".

Note that, if you put a high value on performance or want to prevent threats to communication in an intranet, you should consider using SSL Accelerator.

Denial-of-Service Attacks

A Denial-of-Service (DoS) attack is a cyber attack by sending large numbers of access requests to a target server introducing an increase in workload of the server. This cyber attack will degrade the response speed and service quality of the server, and may prevent authorized users from accessing the server.

To prevent attacks to services, it is recommended to use user authentication, IP access restrictions, SSL communication and to apply size constraints.

These settings can be configured on each web server, if web servers are used.

User authentication

Settings can be configured to allow access only by a registered user. For details, refer to "[5.3 Java EE 6 Application Security Functionality](#)".

IP access restriction

A setting can be configured to execute request processing for access from a particular IP address only. For details, refer to "[IP address that receives requests](#)" (`allowRemoteAddress`).

Size constraints

The size constraint settings shown below can be configured to help protect against buffer overflows. For details, refer to "[7.7.3 Network Configuration Definition Items](#)".

- Request line or header: receive buffer size (buffer-size-bytes)
- POST request BODY: maximum POST request size (max-post-size-bytes)
- Number of request parameters: maximum value for the number of HTTP request parameters (max-request-parameters)

Note that the maximum size of the uploaded file can be configured in the application.

Server Information Leaks

There is a threat that a malicious user on the network will obtain the server information that exists in the X-Powered-By header field of the HTTP response header and be able to attempt an unauthorized access using the product information.

For operations in Java EE 6, it is recommended that you configure the settings so that the X-Powered-By header field is not appended. For details, refer to "[X-Powered-By header field](#)" (xpowered-by).

Configuring the Operation Mode for Access to the Web Container

If the request to the web container does not correspond to the operation mode, a security risk may occur.

Possible examples are: direct access to the web container while the check or filtering for the request is being performed in the web server, and falsification of the request information so that it appears to have come from the web server even though the operation mode is configured so that the web server is not used.

By configuring the appropriate setting, it is possible to restrict the operation mode so that a web server is or is not used.

For details, refer to "[Operation mode for access to the web container](#)" (request-check).

Session Cookie Leaks Caused by Cross-Site Scripting

There is a threat that the cookies will be leaked by a third party through cross-site scripting.

When the HttpOnly attribute is appended to the cookie, it will not be possible to obtain the cookie from the client-side script. For this reason, the effects of cross-site scripting can be reduced.

For operations in Java EE 6, it is recommended that the HttpOnly attribute be appended to the cookie. Note that the HttpOnly attribute is appended to the session cookie by default. The HttpOnly attribute can be appended to the session cookie from Servlet 3.0.

Session Information Leaks

The session information is embedded in the cookie or URL parameter. In the case of the Internet, the communication content sent between the web browser and web server may be intercepted and/or tampered with. For this reason, it is recommended that SSL communication be used when exchanging important session information.

Note that, when `HttpServletResponse#encodeURL(java.lang.String)` or `encodeRedirectURL(java.lang.String)` of the Servlet API is used, the session ID may be included in the URL. If so, a client that cannot use cookies can continue the session. However, if the session ID is included in the URL, there is the following threat:

- The web browser will send the URL of the webpage that is currently displayed, including the Referer header, to another site, causing the session ID to be leaked

For this reason, it is recommended that session cookies be used to track sessions, except when the client, for example the browser, cannot use cookies.

Note that, even when session cookies are used, if the above API is used for the initial request then the URL will be embedded in the session ID. When these APIs are called, use the following method, introduced in Servlet 3.0, to prevent the session ID from being included in the URL:

- Specify `SessionTrackingMode.COOKIE` in `javax.servlet.ServletContext#setSessionTrackingModes(Set<SessionTrackingMode> sessionTrackingModes)`.



Example

ServletContextListener when using only session cookies to track sessions

```
public class MyServletContextListener implements ServletContextListener {  
  
    @Override
```

```

public void contextInitialized(ServletContextEvent event) {
    ServletContext sc = event.getServletContext();
    Set<SessionTrackingMode> set = new HashSet<SessionTrackingMode>();
    set.add(SessionTrackingMode.COOKIE);
    sc.setSessionTrackingModes(set);
}

@Override
public void contextDestroyed(ServletContextEvent event) {
}
}

```

- Specifying COOKIE in <tracking-mode> of web.xml

Example

web.xml when using only session cookies to track sessions

```

<?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_3_0.xsd"
    version="3.0">
<session-config>
    <tracking-mode>COOKIE</tracking-mode>
</session-config>
</web-app>

```

Note

- Even when HttpServletResponse#encodeURL(java.lang.String) or encodeRedirectURL(java.lang.String) is not used in the application, it may be used internally by JSF or other frameworks (in the case of JSF, it is defined in the specifications that these APIs be used). For this reason, it is recommended that "tracking-mode" be specified in web.xml.
- If this is specified in both the Servlet API and web.xml, the value configured in the Servlet API will have the higher priority.

Threats Through Misuse of the HTTP TRACE Method

There is a threat that a malicious user (or machine) on the network will secretly look at personal information that exists in the HTTP request data and run arbitrary code.

To prevent this type of threat, it is recommended that the HTTP TRACE method be disabled.

Note that the TRACE method is used to perform diagnostics on the network, for example, and is the method in HTTP/1.1 of receiving the data transmitted from the client side as response data "as is". Normally, this method is not used, so it has no effect on operations if the method is disabled.

5.2 Java EE 6 Operating Environment Security Function

This section explains the Java EE 6 operating environment security function.

5.2.1 Java EE 6 Operating Environment Security Overview

The security features shown below can be used in the Java EE 6 operating environment.

Access Control for Operations, Based on OS User Privileges

In the Java EE 6 operating environment, appropriate access control is performed for the command that provides each operation based on the OS user privileges. Accordingly, it is possible to prevent an operation from being executed by an unauthorized user.

For details, refer to ["5.2.2 Java EE 6 Operating Environment Roles"](#).

Customizing the Effective User for Processes Solaris32/64 Linux32/64

The effective user of the Java process can be specified for the IJServer cluster or server instance, for example, which is provided in the Java EE 6 operating environment. By configuring the effective user for the processes appropriately, it is possible to reduce security risks that occur through running unauthorized applications that accidentally destroy system resources.

For details, refer to ["5.2.3 Effective User for Processes"](#).

Interstage Java EE 6 DAS Service Login Authentication

You can use login authentication to access the Interstage Java EE 6 DAS service admin port, for example.

For details, refer to ["5.2.4 Login Authentication"](#).

Protecting the Keystore/Truststore by Using a Master Password

The keystore/truststore which are accessed by the Interstage Java EE 6 DAS service or server instances during SSL communication are protected by using a password that is configured by the user.

For details, refer to ["5.2.8 Master Password"](#).

Encrypted Communication for Operation Management Operations

The communication between the Interstage Java EE 6 DAS service and the server instance, and the asadmin command communication, are encrypted.

For details, refer to ["5.2.9 Encrypted Communication for Operation Management Operations"](#).

5.2.2 Java EE 6 Operating Environment Roles

In the Java EE 6 operating environment, access control is performed using roles that are based on OS user privileges.

| Role | OS user |
|-------------------------|--|
| OS system administrator | Windows32/64 Users belonging to the Administrators group Linux32/64 root Solaris32/64 |

| Role | OS user |
|--|--|
| | root (or user assigned the root role) |
| Solaris32/64 Linux32/64 Service operator user | The user specific to the Java EE 6 environment who uses the Interstage operator group as the primary group. This is configured in ij6setoperatorid . |
| General user | OS user other than the OS system administrator or the service operator user. |

The service operator user is an OS user with privileges to operate the Interstage Java EE 6 DAS service, for example, which is provided in Java EE 6. The default value for the service operator, specified during installation, is the root user. However, this can be changed by specifying a user that belongs to the Interstage operator group.



See

- For details on the service operator user, refer to "9.4 [ij6setoperatorid](#)".
- For details on the Interstage operation group, refer to "Installation Guide".



Note

In Windows, the service operator user cannot be specified.

An overview of these roles is shown below. For details on the operation privileges that are granted to the role, refer to "5.2.5 [Privileges and Authenticated Users](#)".

General User

A general user has privileges to start and stop the application client container, and create resources required by the JAX-WS web service from the WSDL file.

Service Operator User **Solaris32/64** **Linux32/64**

In addition to the operations that can be executed by the general user, general operations that include the privileges for operations, references, and changing definitions shown below can be executed. This user has privileges to execute all operations using the `asadmin` command.

- Privileges for operations

This user can start and stop the Interstage Java EE 6 DAS service and PCMI service, and create, start, and stop the IJServer cluster. 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

Windows32/64

In addition to the operations that can be executed by the general user, general operations that include the privileges for operations, references, and changing definitions shown below can be executed. This user has privileges to execute all operations using the `asadmin` command.

- Privileges for operations

This user can start and stop the Interstage Java EE 6 DAS service and PCMI services, and create, start, and stop the IJServer cluster. 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.

In addition, this user has privileges to execute the following operation:

- Back up and restore Java EE 6 resources

Solaris32/64 Linux32/64

In addition to the operations that can be executed by the service operator user, this user has privileges to execute the following operations:

- Back up and restore Java EE 6 resources
- Configure the service operator user settings

5.2.3 Effective User for Processes **Solaris32/64 Linux32/64**

The effective users for the Java EE 6 environment processes are shown below.

| Process | Effective user |
|--|--|
| PCMI service | Service operator user |
| Interstage Java EE 6 DAS service | Service operator user |
| Server instance under the IJServer cluster | Service operator user |
| Java DB | User who executes the <code>asadmin start-database</code> subcommand |
| Message broker | User who executes the <code>imqbrokerd</code> command |

The Java VM process of the server instance under the PCMI service/Interstage Java 6 EE DAS service/IJServer cluster works by assigning the Java EE 6 service operator user as the effective user.

The default value for the OS system administrator, specified during installation, is the service operator user. However, the operations of the application running on the Interstage Java EE 6 DAS service or IJServer cluster, can be restricted by changing the effective user of the process by specifying a user other than the system administrator.

Point

By managing the effective user for the server instance processes under the Interstage Java EE 6 DAS service or IJServer cluster, it is possible to reduce security risks which are caused by unauthorized application operations, for example the accidental destruction of system resources.

If the service operator user is changed, the PCMI service Java VM process will also run with the specified service operator user as the effective user.

As the service operator user, specify an OS user that uses the Interstage operator group as the primary group in the `ij6setoperatorid` command.



See

For details on the service operator user, also refer to "5.2.2 Java EE 6 Operating Environment Roles".



Note

- In Windows environments, the effective user cannot be specified for IJServer cluster processes.
- Before changing the service operator user, stop all services that are running, including Interstage Java EE 6 DAS service and PCMI service.

5.2.4 Login Authentication

When an operation is to be executed in the Java EE 6 operation environment, login authentication is executed using the operations realm. Specify the administrator user ID and password in the initial setup file realm. For details on how to create the login user and specify the user/password used for authentication, refer to "5.2.6 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 "5.3.5 Realm".

5.2.5 Privileges and Authenticated Users

Execution privileges for all the operations that are provided in the Java EE 6 environment, and details of the authenticated users, are shown below.

| Operation | OS user privileges | Uses that performs login authentication |
|---|--|---|
| | Command execution privileges (Note 1) | |
| Start PCMI service | <div style="border: 1px solid green; padding: 2px; display: inline-block;">Windows32/64</div> OS system administrator <div style="border: 1px solid orange; padding: 2px; display: inline-block;">Solaris32/64</div> <div style="border: 1px solid red; padding: 2px; display: inline-block;">Linux32/64</div> Service operator user | No authentication |
| Stop PCMI service | <div style="border: 1px solid green; padding: 2px; display: inline-block;">Windows32/64</div> OS system administrator <div style="border: 1px solid orange; padding: 2px; display: inline-block;">Solaris32/64</div> <div style="border: 1px solid red; padding: 2px; display: inline-block;">Linux32/64</div> Service operator user | No authentication |
| Display PCMI service status - pcmistat | <div style="border: 1px solid green; padding: 2px; display: inline-block;">Windows32/64</div> OS system administrator <div style="border: 1px solid orange; padding: 2px; display: inline-block;">Solaris32/64</div> <div style="border: 1px solid red; padding: 2px; display: inline-block;">Linux32/64</div> Service operator user | No authentication |
| Display status of processes monitored in the PCMI service - pcmlistprocesses | <div style="border: 1px solid green; padding: 2px; display: inline-block;">Windows32/64</div> OS system administrator | No authentication |

| Operation | | OS user privileges | Uses that performs login authentication |
|--|---|---|--|
| | | Command execution privileges (Note 1) | |
| | | Solaris32/64 Linux32/64 Service operator user | |
| Specify service operator user | Solaris32/64 Linux32/64 - ij6setoperatorid command | OS system administrator | No authentication |
| Back up and export Java EE 6 environment resources | - ij6backup command | OS system administrator | No authentication |
| Restore and import Java EE 6 environment resources | - ij6restore command | OS system administrator | No authentication |
| Use the asadmin command | Start the Interstage Java EE 6 DAS service | Windows32/64 OS system administrator Solaris32/64 Linux32/64 Service operator user | No authentication |
| | Stop the Interstage Java EE 6 DAS service | Windows32/64 OS system administrator Solaris32/64 Linux32/64 Service operator user | No authentication |
| | Change the master password | Windows32/64 OS system administrator Solaris32/64 Linux32/64 Service operator user | No authentication |
| | Other | Windows32/64 OS system administrator Solaris32/64 Linux32/64 Service operator user | User specified when the command is executed (Note 2) |
| Manages web server connectors | - wscadmin | Windows32/64 OS system administrator Solaris32/64 Linux32/64 Interstage operator group user | No authentication |

| Operation | OS user privileges | Uses that performs login authentication |
|--|---------------------------------------|---|
| | Command execution privileges (Note 1) | |
| Back up and export Web Server Connector (Interstage HTTP Server 2.2) resources - wscbackup command | OS system administrator | No authentication |
| Restore and import Web Server Connector (Interstage HTTP Server 2.2) resources - wscrestore command | OS system administrator | No authentication |
| Starting the application client container - applclient | General user | No authentication |
| Creating, removing, and starting the message broker material - imqbrokered | OS system administrator | No authentication |
| Managing message brokers - imqcmd | OS system administrator | Message broker administrator |
| Managing and removing 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 |

Note 1)

Windows32/64

All "general user" operations can also be performed by the OS system administrator.

Solaris32/64 Linux32/64

All "general user" operations can also be executed by the service operator user or OS system administrator. Additionally, all "service operator user" operations can also be executed by the OS system administrator.

Note 2)

Specify the user that is authenticated when the asadmin command is executed. For details, refer to ["5.2.7.1 Login Authentication for the asadmin Command"](#).

5.2.6 Registering the Administrator User

This section explains how to register the administrator user used for login authentication.

When admin user information is updated, the relevant information for the admin user that is specified when the asadmin command is authenticated and the Interstage Java EE 6 DAS service starts up, must also be changed. For details on how to specify this information, refer to ["5.2.7 Specifying the Administrator User"](#).

5.2.6.1 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 for asadmin command login authentication. admin-realm cannot be deleted.

The file realm can be selected for admin-realm.

The initial (default) values for the admin-realm user name and password are specified during installation.

| Realm type | User name | Password | Group name |
|------------|---|------------------------|------------|
| file realm | Administrator user ID (default value: admin) | Administrator password | asadmin |

Note

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.

5.2.6.2 File Realm Settings

To edit the administrator user follow the procedure below. For details on the file realm, refer to "[5.4.5 Managing File Realm Users and Groups](#)".

Using the set Subcommand

1. Execute the following subcommands to create/delete/update/list file realm users or list file realm groups:
 - create-file-user
 - delete-file-user
 - update-file-user
 - list-file-users
 - list-file-groups

Note

- When administrator users are managed using the above subcommands, specify "admin-realm" for the -authrealmname option.
- 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.
- Notes on creating the user account
 - Password
Min 8 characters, max 20 characters is recommended.
 - Deleting users
Regardless of whether the asadmin group is specified for the assign-groups (assignment of the group), at least 1 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 for admin-realm, the administrator user password can be changed after login using the asadmin command.

Using the asadmin command

Use the asadmin command change-admin-password subcommand.

5.2.6.3 Notes on Updating Admin-realm and Administrator User Information

Restarting the Interstage Java EE 6 DAS Service

If the admin-realm setting was changed, then restart the Interstage Java EE 6 DAS service.

Reimplementing the login 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.

- The number of admin users was increased or decreased, the group they belong to was changed, or a password was updated.

Execute the login subcommand again if necessary.

Additionally, if the autorestart of the server instance process by the keep alive monitoring function is enabled, execute the login --pemi subcommand after updating the administrator user information to update the .asadminpass file. For details, refer to "[2.5.1 Life-and-death Monitoring of the Java VM Process](#)".

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.

Use the asadmin command --passwordfile option and the change-admin-password subcommand to change the password to the recommended length.



Example

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin --user user01 --passwordfile C:\user01_pass.txt change-admin-password
```

For details on the --passwordfile option, refer to "[9.1.2 asadmin Command Common Options](#)". For details on the change-admin-password subcommand, refer to "[9.1.17.1 change-admin-password Subcommand](#)".

Valid Characters in the Administrator User ID and Administrator Password

Create an administrator user ID from 1 to 255 characters, 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 "[1.3.4 Notes on the Java EE 6 Password](#)" in the "Java EE 6 Overview" chapter.

5.2.7 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 asadmin command. |

5.2.7.1 Login Authentication for the asadmin Command

Use one of the following methods for login authentication. For details on these methods, refer to "[Specifying the user and password](#)".

- Specify options when executing the asadmin command
- Enter the administrator user ID and password at the command prompt
- Use the administrator user ID and password that are already registered in the .asadminpass file after executing the login command

The administrator user ID and password used for authentication are selected according to the following priority.

File 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.

5.2.8 Master Password

The master password is used as the password for the keystore/truststore accessed by the Interstage Java EE 6 DAS service or server instance during SSL communication.

To change the master password, execute the "[change-master-password subcommand](#)" of the asadmin command.

The master password must be specified in the following asadmin subcommands:

- "[start-domain Subcommand](#)"
- "[start-cluster Subcommand](#)"
- "[start-local-instance Subcommand](#)"

One of the following methods can be selected to specify the master password:

- When the "start-cluster subcommand" is used:
 - [Using a file that has already been saved](#)
- When the "start-domain subcommand" or "start-local-instance subcommand" is used:
 - [Using a file that has already been saved](#)
 - [Using the password file option](#)

Using a file that has already been saved

When executing the asadmin command change-master-password subcommand, specify the --savemasterpassword option so that the master password is saved to this file after it is changed. Hereafter, the master password can be omitted because the asadmin command will reference the file that was saved. For details on how to use --savemasterpassword, refer to "[9.1.17.2 change-master-password Subcommand](#)".

Using the password file option

In the asadmin command common option --passwordfile, specify the file in which the master password has been defined. For details on how to use --passwordfile, refer to "[9.1.17.2 change-master-password Subcommand](#)".



Notes on managing the master password

The keystore/truststore contain keys used for encryption, decryption, and digital signatures, therefore the master password must be strictly managed. Consider how to specify the master password, and whether it is necessary to change it, according to the operating guidelines.

5.2.9 Encrypted Communication for Operation Management Operations

The communication between the Interstage Java EE 6 DAS service and the server instance is encrypted using SSL. Additionally, by executing the `asadmin` command `enable-secure-admin` and `disable-secure-admin` subcommands, the `asadmin` command communication can be switched between SSL communication and non-SSL communication.

For details, refer to "9.1.17.3 enable-secure-admin Subcommand" and "9.1.17.4 disable-secure-admin Subcommand". Additionally, for details on SSL, refer to "5.3.3 SSL" and "5.3.3.2 Certificates".

In SSL communication for operational management operations, the following certificates, which are contained in the keystore/truststore, are used:

| Alias | Issuer name/Owner name | Validity |
|--------------------|------------------------|------------------------------------|
| s1as | CN=host name | 10 years from date of installation |
| glassfish-instance | CN=host name-instance | |



The alias (s1as and glassfish-instance) should not be changed.

When reissuing the certificates for alias s1as and glassfish-instance, the settings must be configured for both of these aliases. Use the following procedure to configure the settings for both certificates:

1. Back up the keystore file and truststore file.
2. To use the existing alias, delete the corresponding public and private key pair registered in the keystore.



Executing the command when the alias is "s1as"

Windows32/64

```
keytool -delete -alias s1as -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\keystore.jks
```

Solaris32/64 Linux32/64

```
keytool -delete -alias s1as -keystore /var/opt/FJSVisje6/domains/domain1/config/keystore.jks
```

3. Generate a new public and private key pair in the keystore. For the CN specified in the `-dname` option, specify the "Issuer name/Owner name" that corresponds to each certificate..

Windows32/64

```
keytool -genkeypair -alias s1as -keyalg RSA -keysize 2048 -sigalg SHA256withRSA -dname CN=installed host name -validity 3650 -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\keystore.jks
```

Solaris32/64 Linux32/64

```
keytool -genkeypair -alias s1as -keyalg RSA -keysize 2048 -sigalg SHA256withRSA -dname CN=installed host name
-validity 3650 -keystore /var/opt/FJSVisje6/domains/domain1/config/keystore.jks
```

4. Export the new public key from the keystore.

Example

Executing the command when the alias is "s1as", and the certificate file name is "admindcert.cer"

Windows32/64

```
keytool -export -alias s1as -file admincert.cer -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config
\keystore.jks
```

Solaris32/64 Linux32/64

```
keytool -export -alias s1as -file admincert.cer -keystore /var/opt/FJSVisje6/domains/domain1/config/keystore.jks
```

5. Delete the public key from the truststore.

Example

Executing the command when the alias is "s1as", and the certificate file name is "admindcert.cer"

Windows32/64

```
keytool -delete -alias s1as -file admincert.cer -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config
\cacerts.jks
```

Solaris32/64 Linux32/64

```
keytool -delete -alias s1as -file admincert.cer -keystore /var/opt/FJSVisje6/domains/domain1/config/cacerts.jks
```

6. Import the new public key to the truststore.

Example

Executing the command when the alias is "s1as", and the certificate file name is "admindcert.cer"

Windows32/64

```
keytool -import -alias s1as -file admincert.cer -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config
\cacerts.jks
```

Solaris32/64 Linux32/64

```
keytool -import -alias s1as -file admincert.cer -keystore /var/opt/FJSVisje6/domains/domain1/config/cacerts.jks
```

7. Change the last updated datetime of the Interstage Java EE 6 DAS service domain.xml. For details, refer to "[2.1.4 Repository Synchronization](#)".

5.3 Java EE 6 Application Security Functionality

Preventing unauthorized access to Java EE 6 application resources is explained below.

5.3.1 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 how to configure the settings, refer to the Java EE rules and sub rules.

When Authentication Fails

The following message is output to the server log, and Status Codes 401 (for BASIC authentication) and 200 (for FORM authentication) are returned.

- WEB9102

Java EE Application Client Authentication

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.

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.



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.

5.3.2 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.

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

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, one of the following exceptions is notified to the client, depending on the accessed interface type.

| Router interface | Exception notified |
|--|--------------------------------|
| Business interface | javax.ejb.EJBException |
| Remote Business interface which 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 |

5.3.3 SSL

The SSL support range in the Java EE 6 runtime environment is as follows:

| Item | | Support Range | |
|-----------------------|-------------------------|--|---------------|
| Certificate nickname | | String that can be specified in the JDK keytool command | |
| Protocol version | | SSL3.0 TLS1.0 | |
| Encryption method | | Encryption method supported by the JDK that is used | |
| Client authentication | | One of the following can be selected: <ul style="list-style-type: none">- Authentication is not used- Authentication is used only when a client certificate is sent- Authentication must be used | |
| Certificate | CA certificate | Key generation algorithm | RSA |
| | | Key length | 2048bit |
| | | Signature algorithm | SHA1withRSA |
| | Self-signed certificate | Key generation algorithm | RSA |
| | | Key length | 2048bit |
| | | Signature algorithm | SHA256withRSA |

5.3.3.1 Java EE 6 Runtime Environment Settings

Certificate Nickname

Specify an alias for the keystore which corresponds to the certificate used in the Java EE 6 runtime environment. For details on the configuration, refer to the network configuration definition item "[Certificate nickname](#)".

Protocol Version

This can be changed by enabling or disabling the SSL/TLS protocol version setting. For details on the settings, refer to "[Enabling SSL 3.0](#)" and "[Enabling TLS 1.0](#)".

Encryption Method

Configure a list of the encryption methods that are selected when the connection is established between the SSL server and client. For details on the configuration, refer to the network configuration definition item "[Encryption method group](#)".

Client Authentication

In client authentication, the SSL server verifies the identity of the client using the certificate that was sent from the client.

For details on the behavior, refer to the network configuration definition item "[Client authentication](#)".

5.3.3.2 Certificates

Certificates use a key pair: a digitally signed public key, and a private key. In SSL, the following certificates are used:

- Server (client) certificate

Public key created by the server (client) and signed by the CA

- CA certificate

Public key (root certificate) created by the root CA and signed by the root CA itself, or public key (intermediate CA certificate) created by the subordinate intermediate CA and signed by the high-level CA

- Self-signed certificate

Public key created by the server (client) and signed by the server (client) itself

Register the certificate in the keystore/truststore protected by the master password. For details on the master password, refer to "5.2.8 Master Password".

Use the JDK keytool command to operate on the keystore/truststore. The certificate in the keystore/truststore is uniquely identified by an alias. For details on the keytool command and aliases, refer to the JDK information. The certificates that are stored in the keystore/truststore are shown below.

When a certificate signed by the CA is used

- Keystore
 - Server (client) certificate signed by the root CA or intermediate CA
 - Private key that corresponds to the server (client) certificate
 - Root CA certificate
 - Intermediate CA certificate (if required)
- Truststore
 - Root CA certificate trusted by the server (client)
 - Intermediate CA certificate trusted by the server (client) (if required)

When a self-signed certificate is used

- Keystore
 - Self-signed certificate
 - Private key that corresponds to the self-signed certificate
- Truststore
 - Self-signed certificate

Point

- The server (client) sends the CA certificate and server (client) certificate in the keystore to the other communication party.
- The server (client) verifies the validity of the certificate by comparing the certificate received from the other communication party with the certificate in the truststore.

The keystore file and truststore file are stored as follows:

Windows32/64

```
Keystore file:[Java EE 6 common directory]\domains\domain1\config\keystore.jks
Truststore file:[Java EE 6 common directory]\domains\domain1\config\cacerts.jks
```

Solaris32/64 Linux32/64

```
Keystore file:[Java EE 6 common directory]/domains/domain1/config/keystore.jks
Truststore file:[Java EE 6 common directory]/domains/domain1/config/cacerts.jks
```



Note

- Before updating the keystore/truststore content, create a backup of this content.
- The keystore and truststore files are synchronized between the Interstage Java EE 6 DAS service and all IJServer clusters. For this reason, configure the certificate settings for the Interstage Java EE 6 DAS service keystore/truststore.
- Configure the security privileges according to the operating guidelines for the keystore and truststore files.
- When executing the keytool command, specify the master password for the keystore/truststore password.
- The keystore/truststore password should not be changed in the keytool command.
- When creating the key pair in the keytool command, specify the same master password for the private key password.
- The alias (s1as/glassfish-instance) certificate that is registered in the keystore/truststore when the installation is performed should not be used in actual operations.

5.3.3.3 Certificate Settings

In this product, the following types of communication can be performed using SSL. This section explains the settings that are configured for each communication type in order to use SSL.

- Communication between the web browser and the web server
- [Communication Between the Web Browser and the Web Container](#)
- [Communication Between the Web Service Client and the Web Service](#)
- [Communication Between the HTTP Client and the JAX-RS Application](#)

Communication Between the Web Browser and the Web Container

Web container settings

If the web container will perform SSL communication using an HTTPS listener, or the web application will perform communication independently as an SSL server, configure the following settings:

1. Configure the server certificate settings according to the procedure in "[Server \(Client\) Certificate Settings](#)".
2. When using SSL client authentication, configure the settings according to the procedure in "[Trusted CA Certificate Settings](#)".

When the web application is communicating as the SSL client, configure the following settings:

1. Configure the settings according to the procedure in "[Trusted CA Certificate Settings](#)".
2. If SSL client authentication is required, configure the client certificate settings according to the procedure in "[Server \(Client\) Certificate Settings](#)".

Web browser settings

If the trusted CA certificate is not registered in the web browser, obtain the root certificate and, if necessary, the intermediate CA certificate, from the CA and then register the certificate in the web browser.

Communication Between the Web Service Client and the Web Service

If the web service endpoint URL is specified as "https" in the web service client, a secure web service will be called according to the JSSE(Secure Socket Extension) configuration using SSL. For details on the web service endpoint URLs, refer to "[3.1.1 Developing Web Service Applications](#)".

Web service settings

Configure the settings for the web server or web container in the same way as for the web application. .

Web service client settings

Configure the keystore and truststore file settings for the application client container that executes the web service client using the following procedure:

1. Using the JDK keytool command, create the keystore/truststore.
2. Register the trusted CA certificate in the truststore.
3. When the client certificate is used, register the client certificate and the trusted CA certificate at the keystore.
4. Configure the settings shown below in the VMARGS environment variable:

When the client certificate is not used

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 the client certificate is used

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
```

Communication Between the HTTP Client and the JAX-RS Application

In JAX-RS, HTTP communication is performed by a JAX-RS application that runs on the web container (server-side) and any HTTP client (including, for example, a web browser or a mobile device) (client-side). When using SSL in a JAX-RS application, configure the settings shown below.

Configuring the JAX-RS application settings

Configure the settings using the same method as the one used for the web application settings.

Configuring the HTTP client settings

Check the specifications for the HTTP client you are using, and then configure the required settings, for example, register the trusted certificate.

5.3.3.4 Settings for the Certificate Signed by the CA

Server (Client) Certificate Settings

Use the following procedure to obtain the server (client) certificate that has been signed by the CA and configure the keystore settings:

1. Back up the keystore file.

- To use the existing alias, delete the corresponding public and private key pair registered in the keystore.

Example

Executing the command when the alias is "newcert"

Windows32/64

```
keytool -delete -alias newcert -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\keystore.jks
```

Solaris32/64 Linux32/64

```
keytool -delete -alias newcert -keystore /var/opt/FJSVisje6/domains/domain1/config/keystore.jks
```

- Generate a new public and private key pair in the keystore using any alias. Additionally, specify the X.500 identifying names shown below. When specifying this value, follow the specifications for the X.500 identifying name and the CA procedure.

| X.500 identifying name | Meaning |
|------------------------|---|
| CN(Common Name) | First and last name. For a server certificate, this is the FQDN or IP address (Note) |
| OU(Organization Unit) | Organizational unit (Example: Department) |
| O(Organization) | Organization (Example: Company) |
| L(Locality) | City or area (Example: Municipality) |
| ST(State or Province) | State or region (Example: Prefectural and city governments) |
| C(Country) | Country code (ISO3166) |

Note) If the URL FQDN or IP address and the CN do not match, an error will occur in the host name verification during the SSL communication.

Example

Executing the command when the key generation algorithm is "RSA", the key length is "2048" bit, the signature algorithm is "SHA1withRSA", the alias is "newcert", and the validity period is "365" days

Windows32/64

```
keytool -genkeypair -alias newcert -keyalg RSA -keysize 2048 -sigalg SHA1withRSA -dname "CN=example.jp, OU=Example Organization Unit, O=Example Organization, L=Example City, ST=Example Prefecture, C=JP" - validity 365 -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\keystore.jks
```

Solaris32/64 Linux32/64

```
keytool -genkeypair -alias newcert -keyalg RSA -keysize 2048 -sigalg SHA1withRSA -dname "CN=example.jp, OU=Example Organization Unit, O=Example Organization, L=Example City, ST=Example Prefecture, C=JP" - validity 365 -keystore /var/opt/FJSVisje6/domains/domain1/config/keystore.jks
```

- Specify the private key password. This is the same as the keystore password, so just press [ENTER].

```
Enter key password for <newcert>
(RETURN if same as keystore password): [ENTER]
```

- Generate the certificate signing request (CSR) from the keystore.

Example

Executing the command when the alias is "newcert", and the certificate signing request file name is "newcert.csr"

Windows32/64

```
keytool -certreq -alias newcert -file newcert.csr -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\keystore.jks
```

Solaris32/64 Linux32/64

```
keytool -certreq -alias newcert -file newcert.csr -keystore /var/opt/FJSVisje6/domains/domain1/config/keystore.jks
```

6. Send the certificate signing request (CSR) to the CA, and obtain the following:
 - Certificate signed by the CA
 - CA root certificate
 - Intermediate CA certificate (if required)
7. Register the CA root certificate at the keystore.

Example

Executing the command when the alias is "ca_root", and the certificate file name is "ca_root.cer"

Windows32/64

```
keytool -importcert -alias ca_root -file ca_root.cer -trustcacerts -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\keystore.jks
```

Solaris32/64 Linux32/64

```
keytool -importcert -alias ca_root -file ca_root.cer -trustcacerts -keystore /var/opt/FJSVisje6/domains/domain1/config/keystore.jks
```

8. If necessary, register the intermediate CA certificates at the keystore in sequence, starting with the higher-order certificates.

Example

Executing the command when the alias is "ca_inter", and the certificate file name is "ca_inter.cer"

Windows32/64

```
keytool -importcert -alias ca_inter -file ca_inter.cer -trustcacerts -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\keystore.jks
```

Solaris32/64 Linux32/64

```
keytool -importcert -alias ca_inter -file ca_inter.cer -trustcacerts -keystore /var/opt/FJSVisje6/domains/domain1/config/keystore.jks
```

9. Register the certificate that was obtained at the keystore.

Example

Executing the command when the alias is "newcert", and the certificate file name is "mycert.cer"

Windows32/64

```
keytool -importcert -alias newcert -file mycert.cer -trustcacerts -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\keystore.jks
```

Solaris32/64 Linux32/64

```
keytool -importcert -alias newcert -file mycert.cer -trustcacerts -keystore /var/opt/FJSVisje6/domains/domain1/config/keystore.jks
```

-
10. Change the last updated datetime of the Interstage Java EE 6 DAS service domain.xml. For details, refer to "[2.1.4 Repository Synchronization](#)".

Trusted CA Certificate Settings

1. Back up the truststore file.
2. Register the trusted CA root certificate at the truststore.

Example

.....

Executing the command when the alias is "ca_root", and the certificate file name is "ca_root.cer"

Windows32/64

```
keytool -importcert -alias ca_root -file ca_root.cer -trustcacerts -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\cacerts.jks
```

Solaris32/64 Linux32/64

```
keytool -importcert -alias ca_root -file ca_root.cer -trustcacerts -keystore /var/opt/FJSVisje6/domains/domain1/config/cacerts.jks
```

-
3. If necessary, register the intermediate CA certificates at the truststore in sequence, starting with the higher-order certificates.

Example

.....

Executing the command when the alias is "ca_inter", and the certificate file name is "ca_inter.cer"

Windows32/64

```
keytool -importcert -alias ca_inter -file ca_inter.cer -trustcacerts -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\cacerts.jks
```

Solaris32/64 Linux32/64

```
keytool -importcert -alias ca_inter -file ca_inter.cer -trustcacerts -keystore /var/opt/FJSVisje6/domains/domain1/config/cacerts.jks
```

-
4. Change the last updated datetime of the Interstage Java EE 6 DAS service domain.xml. For details, refer to "[2.1.4 Repository Synchronization](#)".

5.3.3.5 Self-Signed Certificate Settings

When using a self-signed certificate except alias s1as and glassfish-instance, use the following procedure to configure the settings:

1. Configure the settings shown in steps 1 to 4 of "[Server \(Client\) Certificate Settings](#)".
2. Export the public key from the keystore.

Example

Executing the command when the alias is "newcert", and the certificate file name is "newcert.cer"

Windows32/64

```
keytool -export -alias newcert -file newcert.cer -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\keystore.jks
```

Solaris32/64 Linux32/64

```
keytool -export -alias newcert -file newcert.cer -keystore /var/opt/FJSVisje6/domains/domain1/config/keystore.jks
```

3. Change the last updated datetime of the Interstage Java EE 6 DAS service domain.xml. For details, refer to "[2.1.4 Repository Synchronization](#)".
4. Register the exported public key at the client.

Note

A self-signed certificate cannot prove the validity to the other communication party, therefore this type of certificate should not be used in the operating environment.

5.3.3.6 Deleting the Certificate

If the certificate has expired, or the certificate is no longer required, use the procedure shown below to delete the certificate.

If the certificate has expired, delete the certificate that is stored in the keystore or truststore, and then perform the procedure in "[5.3.3.4 Settings for the Certificate Signed by the CA](#)" if required.

Note that, if the certificate has expired, the SEC5054 message will be output to the server log.

1. Back up the keystore or truststore file.
2. Delete the certificate that is stored in the keystore or truststore file.

Example

Execution example for deleting the alias newcert from the keystore

Windows32/64

```
keytool -delete -alias newcert -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\keystore.jks
```

Solaris32/64 Linux32/64

```
keytool -delete -alias newcert -keystore /var/opt/FJSVisje6/domains/domain1/config/keystore.jks
```

Execution example for deleting the alias gtecybertrust5ca from the truststore

Windows32/64

```
keytool -delete -alias gtecybertrust5ca -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\cacerts.jks
```

Solaris32/64 Linux32/64

```
keytool -delete -alias gtecybertrust5ca -keystore /var/opt/FJSVisje6/domains/domain1/config/cacerts.jks
```

3. Change the last updated date/time of the Interstage Java EE 6 DAS service domain.xml. For details, refer to "[2.1.4 Repository Synchronization](#)".

5.3.4 User/Group/Role

User, group and role are explained below.

User

This is an ID that identifies an individual or an application program.
A user is mandatory to use Java EE security.

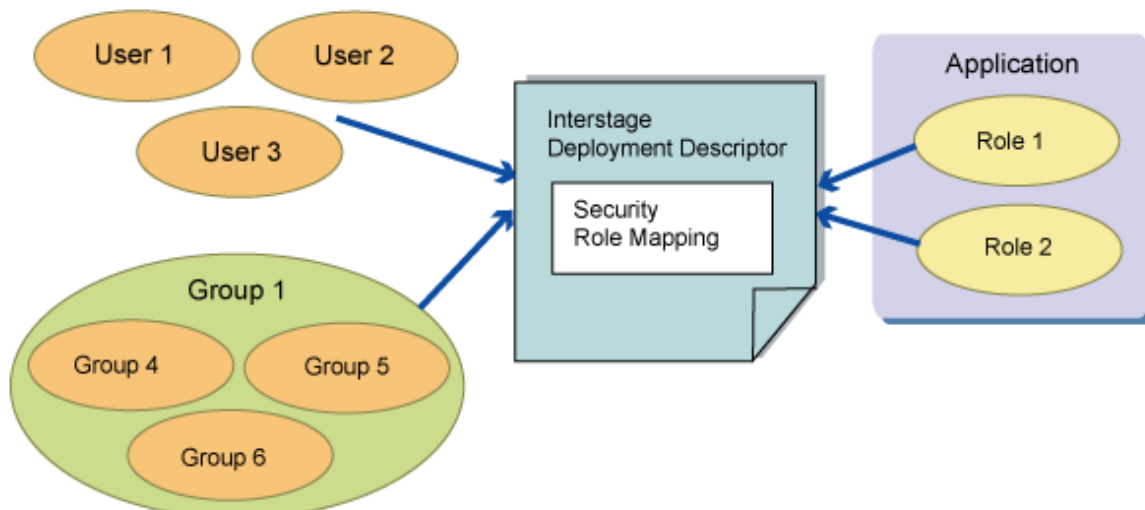
Group

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, and role have 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.



5.3.5 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 keyfile. For details on the registration of users in the file realm and the settings, refer to "[5.4.5 Managing File Realm Users and Groups](#)".

This product already contains realms. "file" and "admin-realm" can be used.

"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 asadmin command.

To use a realm that was not registered initially, create the realm using the asadmin command create-auth-realm subcommand. For details on the subcommands, refer to "[9.1.17 Subcommands - Category: Security](#)"

5.3.6 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 (glassfish-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 (glassfish-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(glassfish-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(glassfish-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 (glassfish-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 (glassfish-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(glassfish-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(glassfish-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

- When calling EJB on another machine, the IIOP communication authentication, communication data integrity, and confidentiality settings must be configured in the `ior-security-config` tag of `glassfish-ejb-jar.xml`. For details on how to configure these settings, refer to "[3.2.1.3 Interstage EJB application deployment descriptor \(glassfish-ejb-jar.xml\)](#)".
- 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 (`glassfish-web.xml`) file is defined in the `principal-name` tag under the `servlet` tag.
 - EJB:
principal that is specified in the Interstage deployment descriptor (`glassfish-ejb-jar.xml`) file is defined in the `principal` tag.

5.3.7 Security Manager

Security can be enhanced by using a security manager.

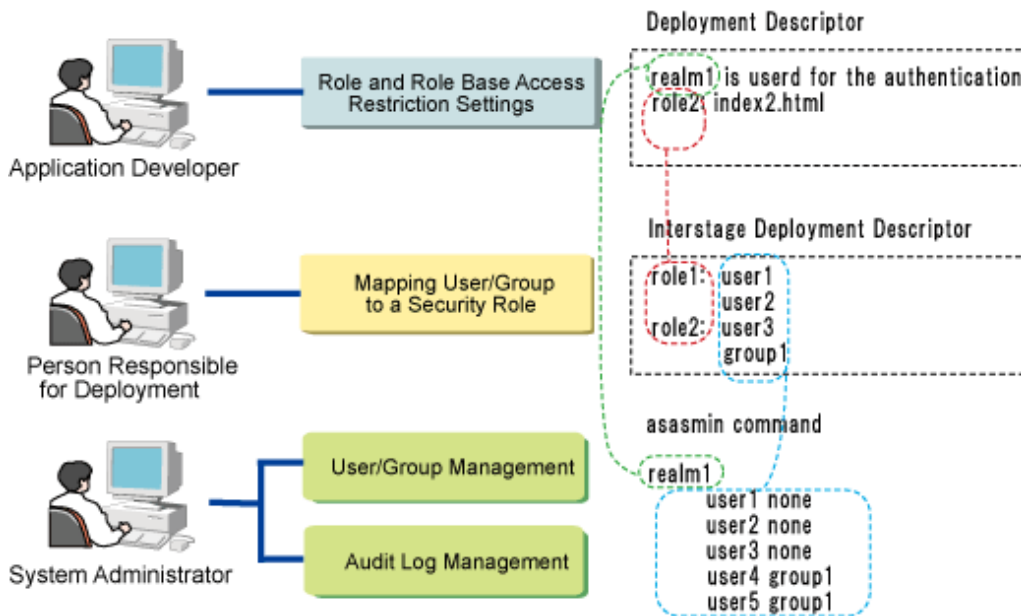
For details on security managers, refer to the following site:

<http://download.oracle.com/javase/6/docs/technotes/guides/security/smPortGuide.html>

For details on how to run the Interstage Java EE 6 DAS service Security Manager, refer to "[5.4.6 Security Manager Operations](#)".

5.4 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.



Application Developer

The application performs access control based on the role. For this reason, the application developer configures the settings for the role and role-based access control, so that the role that accesses the file can be controlled. These settings are configured by editing the deployment descriptor.

For details, refer to "[5.4.1 Role and Role-based Access Restriction Settings](#)".

Person Responsible for Deployment

The person responsible for deployment maps the user/group to the role so that the user/group authorization level is set. These settings are configured by editing the Interstage deployment descriptor.

For details, refer to "[5.4.2 Mapping a User/Group to a Role](#)".

System Administrator

The system administrator creates the realm, and then creates the users (or group, if required) for the realm. These settings are configured using the `asadmin` command.

For details, refer to "[5.4.3 Creating the Realm](#)" and "[5.4.5 Managing File Realm Users and Groups](#)".

5.4.1 Role and Role-based 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 6, Servlet 3.0, and EJB 3.1 specifications.

Example

Defining content in `web.xml` when FORM authentication is used in the Servlet, the file realm "realm1" is used, and the roles used for authorization are "role1" and "role2"

```

<?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_3_0.xsd"
         version="3.0">
  <security-constraint>
    <web-resource-collection>
      <web-resource-name>resource1</web-resource-name>
      <url-pattern>/index1.html</url-pattern>
    </web-resource-collection>
    <auth-constraint>
      <role-name>role1</role-name>
    </auth-constraint>
  </security-constraint>
  <security-constraint>
    <web-resource-collection>
      <web-resource-name>resource2</web-resource-name>
      <url-pattern>/index2.html</url-pattern>
    </web-resource-collection>
    <auth-constraint>
      <role-name>role2</role-name>
    </auth-constraint>
  </security-constraint>
  <login-config>
    <auth-method>FORM</auth-method>
    <realm-name>realm1</realm-name>
    <form-login-config>
      <form-login-page>/form.html</form-login-page>
      <form-error-page>/error.html</form-error-page>
    </form-login-config>
  </login-config>
  <security-role>
    <role-name>role1</role-name>
  </security-role>
  <security-role>
    <role-name>role2</role-name>
  </security-role>
</web-app>

```



Example

Defining content in web.xml when FORM authentication is used in the Servlet, the file realm "realm1" is used, and users "servletUser1" and "servletUser2" are authorized in the Servlet API

```

<?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_3_0.xsd"
         version="3.0">
  <servlet>
    <servlet-name>test</servlet-name>
    <servlet-class>sample.TestServlet</servlet-class>
    <security-role-ref>
      <role-name>servletUser1</role-name>
      <role-link>role1</role-link>
    </security-role-ref>
    <security-role-ref>
      <role-name>servletUser2</role-name>
      <role-link>role2</role-link>
    </security-role-ref>
  </servlet>
</web-app>

```

```

    </security-role-ref>
</servlet>
<servlet-mapping>
  <servlet-name>test</servlet-name>
  <url-pattern>/test</url-pattern>
</servlet-mapping>
<security-constraint>
  <web-resource-collection>
    <web-resource-name>resource2</web-resource-name>
    <url-pattern>/test</url-pattern>
  </web-resource-collection>
  <auth-constraint>
    <role-name>role1</role-name>
    <role-name>role2</role-name>
  </auth-constraint>
</security-constraint>
<login-config>
  <auth-method>FORM</auth-method>
  <realm-name>realm1</realm-name>
  <form-login-config>
    <form-login-page>/form.html</form-login-page>
    <form-error-page>/error.html</form-error-page>
  </form-login-config>
</login-config>
<security-role>
  <role-name>role1</role-name>
</security-role>
<security-role>
  <role-name>role2</role-name>
</security-role>
</web-app>

```



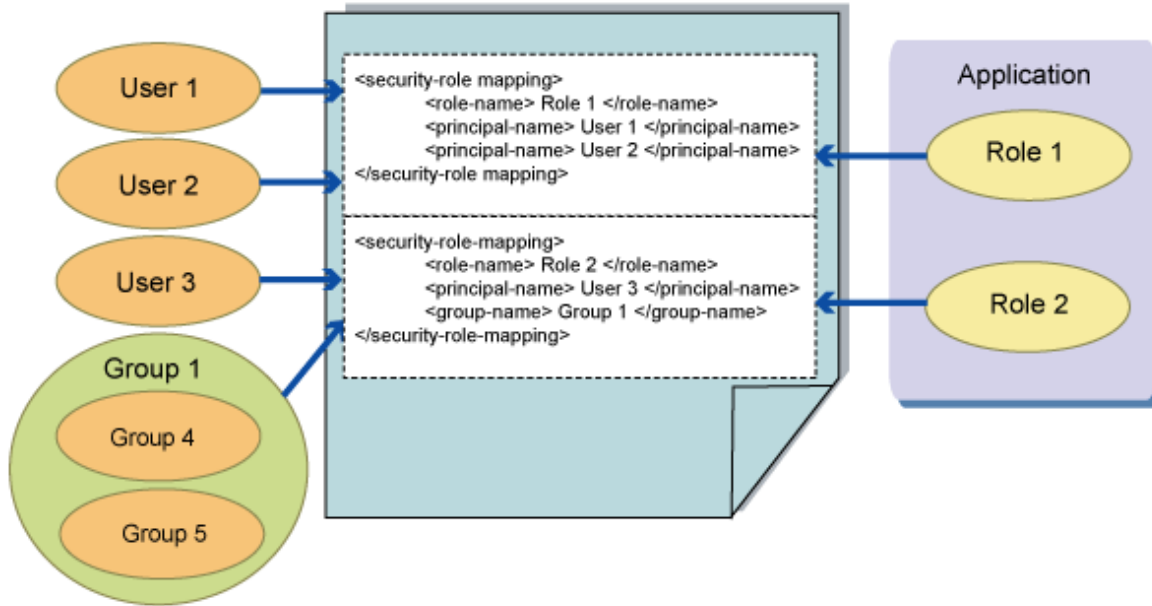
Note

If realm-name is not specified, the default realm will be used for the authentication.

5.4.2 Mapping a User/Group to a Role

The person responsible for deployment edits the Interstage deployment descriptor and maps the user or group to the role.

By mapping the user or group to a role, it is possible to control the authorization level for the user or group that corresponds to the role defined in the deployment descriptor. For details, refer to "[3.2.1 Interstage deployment descriptor](#)".



Example

An example of the Interstage deployment descriptor (glassfish-web.xml) description is as follows:

```
<?xml version="1.0" encoding="UTF-8" ?>
<!DOCTYPE glassfish-web-app PUBLIC
    "-//GlassFish.org//DTD GlassFish Application Server 3.1 Servlet 3.0//EN"
    "http://glassfish.org/dtds/glassfish-web-app_3_0-1.dtd">
<glassfish-web-app>
  <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>
</glassfish-web-app>
```

For example, if the web.xml in Example 1) and Example 2) of "5.4.1 Role and Role-based Access Restriction Settings" and the above glassfish-web.xml are used, the authorization levels shown below are used. Note that user4 and user5 will belong to group1.

Example 1)

- user1,user2:
Access to index1.html is possible
- user3,user4,user5:
Access to index2.html is possible

Example 2)

- user1,user2:
When accessing the servlet "test", ServletAPI HttpServletRequest#isUserInRole("servletUser1") is 'true'
- user3,user4,user5:
When accessing the servlet "test", ServletAPI HttpServletRequest#isUserInRole("servletUser2") is 'true'

5.4.3 Creating the Realm

The file realm "file" is already included in the Interstage Java EE 6 DAS service.

Additionally, it is possible to create new realms, according to your needs. Use the `asadmin` command to create, to delete, to list the realm.

- `asadmin`
 - `create-auth-realm`
 - `delete-auth-realm`
 - `list-auth-realms`

Refer to ["9.1.17 Subcommands - Category: Security"](#).

5.4.4 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.

Use the `asadmin` command to set the default realm that will be used by the application.

- `asadmin`
 - Set the realm that will be used as the default realm, in the `set` subcommand.

For details on the items, refer to ["7.7.12 Security Definition Items"](#).

5.4.5 Managing File Realm Users and Groups

The system administrator manages the user and group of the file realm using the `asadmin` command. The `asadmin set` subcommand is used in the file realm configuration that has already been created. For details on the file realm settings, refer to ["7.7.12 Security Definition Items"](#).

Managing file realm users

The operations such as `add/update/delete/list` file realm user or group use the following `asadmin` command subcommands:

- `asadmin`
 - `create-file-user`
 - `update-file-user`
 - `delete-file-user`
 - `list-file-users`
 - `list-file-groups`

Refer to ["9.1.17 Subcommands - Category: Security"](#).

Here, notes are provided on the content that is entered when the user or group is added or updated using the `asadmin create-file-user` or `asadmin update-file-user` subcommands.

| Item name | Settings | Remarks |
|-----------------------------------|---|---|
| Operand | Specify the user name. | Create a user ID from 1 to 255 characters, comprised of the following characters: <ul style="list-style-type: none">- Alphanumerics- Underscores ('_')- Dashes ('-')- Dot characters ('.') |
| --groups option | Specify the list of groups that the user belongs to. When specifying multiple groups, use a colon (":") to delimit them. | |
| AS_ADMIN_PASSWORD or Enter the | Set a password for the user name. | Multibyte characters, spaces and control code cannot be specified. |

| Item name | Settings | Remarks |
|--|------------------|--|
| user password> prompt of the file specified in the --passwordfile option | | For details on how to create the specified password, refer to " 1.3.4 Notes on the Java EE 6 Password ". |
| Enter the user password again> prompt | Confirm Password | Enter the same value as for Enter the user password> prompt. |

Note

- If the keyfile location is the same, the user or group will be shared between the Interstage Java EE 6 DAS service and the IJServer cluster.
- As with using the provided file realm "file", if a file under "\${com.sun.aas.instanceRoot}/config" is specified in the keyfile, the user or group will be shared between the Interstage Java EE 6 DAS service and the IJServer cluster. At this time, even if the --target option is specified in the asadmin create-file-user subcommand, for example, the user or group that was added or updated can be used in the Interstage Java EE 6 DAS service and all IJServer clusters by restarting the Interstage Java EE 6 DAS service and IJServer cluster and executing repository synchronization processing. For details on the repository synchronization procedure, refer to the note in "[2.1.4 Repository Synchronization](#)".
- If the configuration related to the file realm has been changed, it will be necessary to restart the Interstage Java EE 6 DAS service and IJServer cluster for which the configuration has been changed. If a user or group is shared between the Interstage Java EE 6 DAS service and IJServer clusters, all IJServer clusters that share the user or 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.

5.4.6 Security Manager Operations

This section explains the Security Manager operations.

Enabling and Disabling Security Manager

In the default state, the Interstage Java EE 6 DAS service and the IJServer cluster Security Manager is disabled.

To enable Security Manager, configure the settings shown below using the asadmin command, and then restart the Interstage Java EE 6 DAS service or the IJServer cluster.

- The asadmin command create-jvm-options subcommand
Add -Djava.security.manager to the JVM option.

When Security Manager is disabled, use the delete-jvm-options subcommand of the asadmin command to restore the above settings to their original settings, and then restart the Interstage Java EE 6 DAS service or the IJServer cluster.

Note

Notes on using IIOP communication Solaris64

If the application that uses Security Manager performs IIOP communication and uses the EJB or JMS function, set the following as the system property:

```
jdk.corba.allowOutputStreamSubclass=true
```

If the above is not set, the following exception may occur during IIOP communication:

```
java.security.AccessControlException: access denied (java.io.SerializablePermission
enableSubclassImplementation).
```

5.5 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 as for the Servlet.
- 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.

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 "5.3.3 SSL".

5.6 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 "5.3.3 SSL".

5.7 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 java.sql.SQLException) 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 javax.sql.DataSource class getConnection 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 (Note) |

Note) 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. Security maps

[Connector resources only]

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. Resource adapter connection definition properties

[Connector resources only]

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, and Password), the value is called and can be changed when the corresponding setter method is executed.

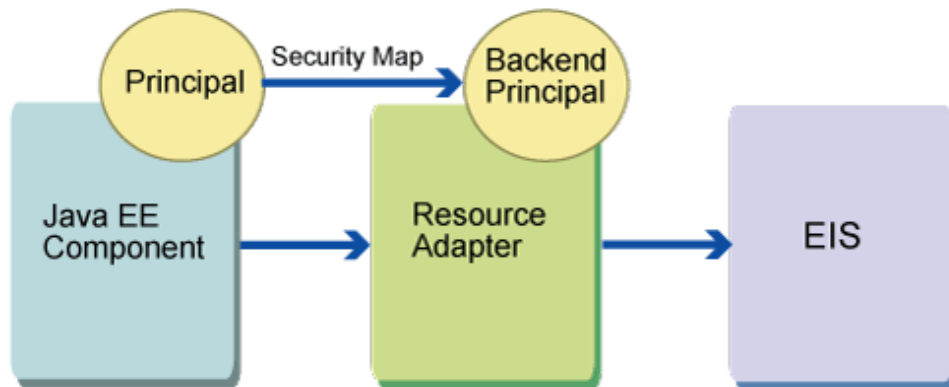
- User name: getUsername() or getUser() return value
- Password: getPassword() return value

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 1 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.

- Use the `asadmin` command subcommands shown below for the create new/update/delete/list operations (for details, refer to "9.1.17 Subcommands - Category: Security"):
 - `create-connector-security-map`
 - `delete-connector-security-map`
 - `update-connector-security-map`
 - `list-connector-security-maps`



When the Connector Connection Pool is deleted, any security maps set in that pool will also be deleted.

5.8 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

5.8.1 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 (for example, when there is a connection from the application or when a command is executed), the message broker looks up 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 a 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 "[5.8.2 Access Control Properties File](#)".

The single layer type file repository retains the following two user types by default.

| User name | Password | Group | Active status |
|-----------|----------|-----------|---------------|
| admin | admin | admin | Active |
| guest | guest | anonymous | Active |

Use the `imqusermgr` command to create new users and manage users. Use the following procedure to execute the `imqusermgr` command:

1. Stop the IJServer cluster.
2. Stop the Interstage Java EE 6 DAS service.
3. Stop the message broker.
4. Execute the `imqusermgr` command.
5. Start the message broker.
6. Start the Interstage Java EE 6 DAS service.
7. Start the IJServer cluster.



Note

- From a security perspective, modify the admin user password that is retained by default immediately after the message broker is created.
- 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.

5.8.2 Access Control Properties File

The message broker can control (by access control) the operations that can be executed by the user and the group.

When the access is controlled, access privileges are granted the user and group operation according to the rules in the access control property file.

When the access is not controlled, access privileges for the admin connection service are granted the admin group, and access privileges for the jms connection service are granted all groups.

The access control setting is configured in the `imq.accesscontrol.enabled` property. In the default setting, the access is controlled. For details on the `imq.accesscontrol.enabled` property, refer to "[7.6.5 Security Properties](#)".

The message broker controls the access by checking the access control properties file when the following operations are performed:

- 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 shown below. Define an access control properties file for each message broker.

Windows32/64


```
[Java EE 6 common directory]\domains\domain1\imq\instances\\etc\accesscontrol.properties
```

Solaris32/64 **Linux32/64**

```
[Java EE 6 common directory]/domains/domain1/imq/instances/<message broker instance 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.
- Stop the Interstage Java EE 6 DAS service/message broker before editing the access control properties file.

The following are explained below.

- [Basic Syntax of the Rules Described in the Access Control Properties File](#)
- [Rules for Defining the Access Control Properties File](#)
- [Notes about when the Resource Type is "connection"](#)
- [Notes about when the Resource Type is "queue" or "topic"](#)

Basic Syntax of the Rules 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: <ul style="list-style-type: none">- connection- queue |

| Element | Meaning | Value that is set |
|------------------------------------|---|---|
| | | - 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 storage 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) (Note) - create(create) Note) 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" resource/"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 about 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
```

Notes about 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](#)".

```
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.

5.8.3 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"

| createConnection 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 (Note 1) | Authentication |
|---|--|---|
| Exists | - | Authenticated using the caller component authentication information |
| Does not exist | Exists | Authenticated using the defined user information |

| Caller authentication information (principal) | Interstage deployment descriptor <resource-ref> <default-resource-principal> definition (Note 1) | Authentication |
|---|--|--|
| | None | Authenticated using the UserName/Password property value for the JMS connection factory added property |

Note 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

Chapter 6 Java EE 6 Tuning

This chapter explains Java EE 6 tuning.

6.1 Interstage Java EE 6 DAS Service Tuning

This section explains Interstage Java EE 6 DAS service tuning.

6.1.1 Port Numbers Used in Operation Management

This section explains how to tune the ports used in Interstage Java EE 6 DAS service operation management.

- [Changing the Operation Management HTTP Listener Port Number](#)
- [Changing the JMX Connector Listener Port Number](#)
- [Changing the Debug Port Number](#)
- [When the Interstage Java EE 6 DAS service cannot be started because of port number duplication](#)

Changing the Operation Management HTTP Listener Port Number

To change the port number, perform the following procedure:

1. Start the Interstage Java EE 6 DAS service.

Execute the `asadmin` command `start-domain` subcommand to start the service.

Note: If the Interstage Java EE 6 DAS service cannot be started because of port number duplication with another process, use the procedure in "[When the Interstage Java EE 6 DAS service cannot be started because of port number duplication](#)" to change the port number.

2. Change the operation management HTTP listener port number.

Modify the `server.network-config.network-listeners.network-listener.admin-listener.port` definition item using the `asadmin` command `set` subcommand.

Example

Changing the port number to '8929'

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set server.network-config.network-listeners.network-listener.admin-listener.port=8929
server.network-config.network-listeners.network-listener.admin-listener.port=8929
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin set server.network-config.network-listeners.network-listener.admin-listener.port=8929
server.network-config.network-listeners.network-listener.admin-listener.port=8929
```

Note

If the above `asadmin` command `set` subcommand is executed in order to change the Operation management HTTP listener port number, Interstage Java EE 6 DAS will not accept normal operations until the service is stopped as in step 3 below.

3. Stop the Interstage Java EE 6 DAS service.

As shown below, execute the `asadmin` command `stop-domain` subcommand to stop the Interstage Java EE 6 DAS service.

Example

When the **host name** that is used to run the Interstage Java EE 6 DAS service is 'interstage', and **port number prior to being changed** is '12011'

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin --host interstage --port 12011 stop-domain
Waiting for the domain to stop .
Command stop-domain executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin --host interstage --port 12011 stop-domain
Waiting for the domain to stop .
Command stop-domain executed successfully.
```

Note

1. The Interstage Java EE 6 DAS service does not accept normal stop procedures. The above procedure must always be executed.
 2. The asadmin command --host option is not supported outside this procedure. Do not specify this option elsewhere.
 3. 'localhost' cannot be specified for the --host option in this procedure. Specify the host name.
 4. Do not specify the operand in the asadmin command stop-domain subcommand in this procedure.
4. Start the Interstage Java EE 6 DAS service.
Execute the asadmin command start-domain subcommand to restart the service.
 5. Update the .asadminpass file.
If the automatic restart of the server instance process is enabled, execute the login --pcmi command to update .asadminpass.

Changing the JMX Connector Listener Port Number

Use the following procedure to change the JMX connector listener port number.

1. Start the Interstage Java EE 6 DAS service.

Execute the asadmin command start-domain subcommand to start the service.

Note: If the Interstage Java EE 6 DAS service cannot be started because of port number duplication with another process, use the procedure in "[When the Interstage Java EE 6 DAS service cannot be started because of port number duplication](#)" to change the port number.

2. Change the JMX connector listener port number.

Modify the server.admin-service.jmx-connector.system.port definition item using the asadmin command set subcommand.

Example

Changing the port number to '8686'

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set server.admin-service.jmx-
connector.system.port=8686
server.admin-service.jmx-connector.system.port=8686
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin set server.admin-service.jmx-connector.system.port=8686
server.admin-service.jmx-connector.system.port=8686
```

- Restart the Interstage Java EE 6 DAS service.

Execute the asadmin command stop-domain subcommand to stop the service, and then execute the asadmin command start-domain subcommand to restart the service.

Changing the Debug Port Number

Use the following procedure to change the debug port number.

- Start the Interstage Java EE 6 DAS service.

Execute the asadmin command start-domain subcommand to start the service.

Note: If the Interstage Java EE 6 DAS service cannot be started because of port number duplication with another process, use the procedure in "[When the Interstage Java EE 6 DAS service cannot be started because of port number duplication](#)" to change the port number.

- Change the debug port number.

Modify the server.java-config.debug-options definition item using the asadmin command set subcommand. The Java VM options are specified in the definition item, therefore change the port number as follows:

Example

Changing the port number from '9009' to '19009'

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin get server.java-config.debug-options
server.java-config.debug-options=-Xdebug -Xrunjdpw:transport=dt_socket,server=y
,suspend=n,address=9009

C:\Interstage\F3FMisje6\glassfish\bin\asadmin set server.java-config.debug-options="-Xdebug -
Xrunjdpw:transport=dt_
socket,server=y,suspend=n,address=19009"
server.java-config.debug-options=-Xdebug -Xrunjdpw:transport=dt_socket,server=y
,suspend=n,address=19009
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin get server.java-config.debug-options
server.java-config.debug-options=-Xdebug -Xrunjdpw:transport=dt_socket,server=y
,suspend=n,address=9009

/opt/FJSVisje6/glassfish/bin/asadmin set server.java-config.debug-options="-Xdebug -
Xrunjdpw:transport=dt_
socket,server=y,suspend=n,address=19009"
server.java-config.debug-options=-Xdebug -Xrunjdpw:transport=dt_socket,server=y
,suspend=n,address=19009
```

Note

If the debug-options setting has changed, the Java VM option may be different from the one above. Obtain the JVM option that is already set using the asadmin command get subcommand, and then change the port number only.

- Restart the Interstage Java EE 6 DAS service.

Execute the asadmin command stop-domain subcommand to stop the service, and then execute the asadmin command start-domain subcommand to restart the service.

When the Interstage Java EE 6 DAS service cannot be started because of port number duplication

If another application is using a port that is required to start the Interstage Java EE 6 DAS service, it will not be possible to start the Interstage Java EE 6 DAS service and use the `asadmin` command. Instead, you will need to edit `domain.xml` to change the port number.

Note

When editing `domain.xml`, do not change any non-port number settings. If these are changed, it might not be possible to use the Interstage Java EE 6 DAS service any more. It is recommended that you back up `domain.xml` before editing it.

Changing port numbers in `domain.xml`

Open the file below using a text editor.

Windows32/64

[Java EE 6 common directory]\domains\domain1\config\domain.xml

Solaris32/64 Linux32/64

[Java EE 6 common directory]/domains/domain1/config/domain.xml

- Operation management HTTP listener port

Find the `config` element where the `name` attribute value is "server-config".

Find the `network-listener` subelement where the `name` attribute value is "admin-listener", and then change the `port` attribute value to the port number required.

Example

Changing the port number to 8929

```
<config dynamic-reconfiguration-enabled="true" name="server-config">
  <network-config>
    <network-listeners>
      <network-listener ... name="http-listener-1" ...
      <network-listener port="8929" protocol="admin-listener" transport="tcp"
        name="admin-listener" thread-pool="admin-thread-pool"></network-listener>
```

- Debug port

Find the `config` element where the `name` attribute value is "server-config", and then change the `java-config` subelement `debug-options` attribute `address` value to the port number required.

Example

Changing the port number to 19009

```
<config dynamic-reconfiguration-enabled="true" name="server-config">
  <java-config debug-options="-Xdebug
-Xrunjdwp:transport=dt_socket,server=y,suspend=n,address=19009" system-classpath=""
  classpath-suffix="">
```

Note

If the `debug-options` setting has changed, the `debug-options` attribute value may be different from the one above.

6.1.2 Java VM Heap and Permanent Area Size

The Interstage Java EE 6 DAS service Java VM heap area size and permanent (perm) area size default values are as follows:

| Type | Default value |
|--------------------------------|---------------|
| Maximum Java VM heap area size | 512m |
| Java VM perm area size | 192m |

The Java VM heap area size and perm area size can be referenced/changed using the `asadmin` command. For details on how to reference or change these values, refer to the following:

- "[9.1.16.4 create-jvm-options Subcommand](#)"
- "[9.1.16.5 delete-jvm-options Subcommand](#)"
- "[9.1.16.6 list-jvm-options Subcommand](#)"

6.1.3 Number of Garbage Collections

Tune the number of occurrences of garbage collection according to the FJVM garbage collection configuration. For details, refer to the "JDK/JRE Tuning" chapter of the Tuning Guide.

Use JConsole to obtain the garbage collection occurrence status.



- As the port number of the Interstage Java EE 6 DAS service that is to be accessed, specify the RMI registry connection port number used by the JMX connector in "[Appendix D Port Numbers](#)".
- For a connection to a remote process, specify the admin user ID and password as the user name and password.
- Do not operate MBeans.

6.1.3.1 Tuning the Frequency of Java RMI Automatic Garbage Collection

In the Interstage Java EE 6 DAS service, the default interval for Java RMI automatic garbage collection is one hour.

To modify the collection interval, change the values for the following Java VM options:

- `-Dsun.rmi.dgc.client.gcInterval=interval`
- `-Dsun.rmi.dgc.server.gcInterval=interval`

interval: A number in milliseconds. The default value is 3600000.

The options above can be modified using the `asadmin` command. For details, refer to the following:

- "[7.7.14 Java VM Definition Items](#)"

The size of the Java VM heap may not be sufficient if the interval for automatic garbage collection is not reduced. Refer to the "[6.1.2 Java VM Heap and Permanent Area Size](#)" section above for details on setting the Java VM heap size.

6.2 PCMI Service Tuning

Tuning of the PCMI service is performed in the PCMI service operation definition file or the PCMI profile.

If operating the PCMI service using the default settings, there is no need to change the PCMI service operation definition. Also, if performing process operations using the default settings, there is no need to create or register the PCMI profile.

The relationship between the registration of the PCMI profile and operation of the PCMI service is shown below.

| PCMI profile registration | Definition content | PCMI service operation |
|---------------------------|--------------------|---|
| Unregistered | - | Monitor using the default PCMI profile. If there is no default PCMI profile, a message will be output and monitoring is performed using the default values. |
| Registered | Correct | Monitor using the specified PCMI profile information. |
| Registered | Invalid | There is a startup error for the Interstage Java EE 6 DAS service or the server instance, and no monitoring occurs. |

6.2.1 Changing the PCMI Profile

To change the process management settings, create and register a PCMI profile.

Point

The new PCMI profile will take effect during startup of the server instance. If the PCMI profile is changed during server instance startup, the new PCMI profile will take effect from the next startup.

Change the PCMI profile using the following procedures:

1. [PCMI profile creation](#)
2. [PCMI profile registration](#)
3. [Interstage Java EE 6 startup](#)

1. PCMI profile creation

Create a PCMI profile for the Interstage Java EE 6 DAS service or server instances to be monitored, and register the definition information that will manage the processes, in XML format.

| | |
|--------------------|---|
| Encoding | UTF-8 |
| Directory | <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">Windows32/64</div> [Java EE 6 common directory]\pcmi\isje6\profile <div style="border: 1px solid black; padding: 2px; display: inline-block; margin-bottom: 5px;">Solaris32/64 Linux32/64</div> [Java EE 6 common directory]\pcmi\isje6\profile |
| Definition content | For details on PCMI profile definition items, refer to " 7.1 PCMI Service Definition Items ". |

Example

```
<?xml version="1.0" encoding="UTF-8"?>
  <Profile xmlns="http://pcmi.interstage.fujitsu.com/Profile">
    <ProcessAutoRestart>
      <Restart>true</Restart>
      <RetryCount>0</RetryCount>
      <RetryCountResetTime>600</RetryCountResetTime>
    </ProcessAutoRestart>
    <MaximumStartupTime>600</MaximumStartupTime>
    <MaximumStopTime>180</MaximumStopTime>
    <ApplicationProcessingTime>
      <MaximumProcessingTime>480</MaximumProcessingTime>
    </ApplicationProcessingTime>
  </Profile>
</xml>
```

```

    <TerminateProcessForTimeout>message</TerminateProcessForTimeout>
</ApplicationProcessingTime>
<Monitor>
    <MonitoringTime>30</MonitoringTime>
    <TerminateProcessForTimeout>message</TerminateProcessForTimeout>
</Monitor>
<Log>
    <Rotation>
        <Type>logsize</Type>
        <Size>1</Size>
        <Time>0</Time>
        <BackupSize>1</BackupSize>
    </Rotation>
</Log>
<CurrentDirectory>
    <NumberOfGenerations>1</NumberOfGenerations>
</CurrentDirectory>
<FJVM>
    <RestartProcessAtOutOfMemory>restart</RestartProcessAtOutOfMemory>
</FJVM>
<EnvironmentVariables>
    <Variable>ENV1=env1</Variable> (Note)
    <Variable>ENV2=env2</Variable> (Note)
</EnvironmentVariables>
</Profile>

```

Note) ENV1 and ENV2 are used as examples of environment variables to be specified. Specify environment variable names corresponding to the operating environment.

Note

- Rather than creating a PCMI profile, you can use and edit the default PCMI profile. However, you must consider the impact of doing this as the default PCMI profile will be effective for all the server instances that have not been registered with "[2. PCMI profile registration](#)".
- As this is an XML file, only change the values of the relevant items; the Interstage Java EE 6 DAS service, or any IJServer clusters or server instances that specified the relevant profile may fail to start if there are errors in other than the item values.
- One <Variable> tag must be specified for each environment variable within each <EnvironmentVariables> tag. Therefore, specify the same number of <Variable> tags as the number of environment variables.
Do not edit tag names or attribute names other than those above.

2. PCMI profile registration

Register the PCMI profile in the startup definitions for the Interstage Java EE 6 DAS service or the IJServer cluster (server instance).
For PCMI profiles, specify the profile definition file in the asadmin command create-jvm-options subcommand.

Example

Examples of profile registration

For the Interstage Java EE 6 DAS service

```
asadmin create-jvm-options -Dcom.fujitsu.interstage.pcmi.profileName=newprofile.xml
```

For IJServer clusters

```
asadmin create-jvm-options --target {$IJServer cluster name} -
Dcom.fujitsu.interstage.pcmi.profileName=newprofile.xml
```

Examples of reverting to the default profile

For the Interstage Java EE 6 DAS service

```
asadmin delete-jvm-options -Dcom.fujitsu.interstage.pcmi.profileName=newprofile.xml
```

For IJServer clusters

```
asadmin delete-jvm-options --target {$IJServer cluster name} -
Dcom.fujitsu.interstage.pcmi.profileName=newprofile.xml
```

| Operand | Value | Mandatory | Description |
|---|--------------|-----------|--|
| com.fujitsu.interstage.pcmi.profileName | profile name | Optional | Specifies the PCMI profile that operates the PCMI service. |

 **Note**

- The Interstage Java EE 6 DAS service must be running during PCMI profile registration.
- If there are errors in the PCMI profile definition registered in the Interstage Java EE 6 DAS service, the Interstage Java EE 6 DAS service will not start and the Java EE 6 operation command will not be usable. If there are errors in the PCMI profile definition, fix them; this will enable the Interstage Java EE 6 DAS service to start.
- If you change the PCMI profile of the Interstage Java EE 6 DAS service, the settings will take effect from the next startup.
- Restart the IJServer cluster after modifying and registering the PCMI profile. If you change the PCMI profile during startup of the IJServer cluster that is subject to change, the settings will take effect from the next startup.
- PCMI profile settings apply to each IJServer cluster. You cannot define PCMI profiles for each server instance for the server instances that belong to the same IJServer cluster.

3. Interstage Java EE 6 startup

Start Interstage Java EE 6 using the following commands.

Monitoring begins after Interstage Java EE 6 starts. Also, monitoring stops when Interstage Java EE 6 is stopped.

| | | |
|------------------|----------------|------------------------------|
| Start monitoring | Start domain | asadmin start-domain |
| | Start cluster | asadmin start-cluster |
| | Start instance | asadmin start-local-instance |
| Stop monitoring | Stop domain | asadmin stop-domain |
| | Stop cluster | asadmin stop-cluster |
| | Stop instance | asadmin stop-local-instance |

Monitoring Information Output Destinations

Current monitoring information is output to the following files:

Windows32/64

```
[Java EE 6 common directory]\pcmi\isje6\logs\[server instance name]\start.info
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/pcmi/isje6/logs/[server instance name]/start.info
```

Note

- If the specified PCMI profile does not exist, message "PCMI1014" will be output to the event log/system log, and the Interstage Java EE 6 DAS service or the server instance will fail to start.
- If a PCMI profile is not specified, operation is by way of the default profile "profile.xml".
- If a PCMI profile is not specified, and the default profile "profile.xml" does not exist, message "PCMI1100" will be output to the event log/system log, and monitoring will be by way of the default values of each definition item. For details on the default values of each definition item, refer to "7.1 PCMI Service Definition Items".
- If there are errors in the PCMI profile definition, message "PCMI1015" or message "PCMI1016" will be output to the event log/system log, and the Interstage Java EE 6 DAS service, or any IJServer clusters or server instances that specified the relevant profile will fail to start.

6.2.2 Process Automatic Retry Count

To suppress abnormal shutdowns of the Java VM processes and repeated automatic restarts due to errors in the application, set the number of times the automatic restart process will be repeated in the "Process Automatic Retry Count" of the PCMI profile. To enable this feature, select "restart (true)" in "Process Automatic Restart" in the PCMI profile.

Process Automatic Retry Count

The Process Automatic Retry Count increments by one each time the Java VM ends abnormally, and when the value set in the Process Automatic Retry Count is reached, the server instance ends abnormally.

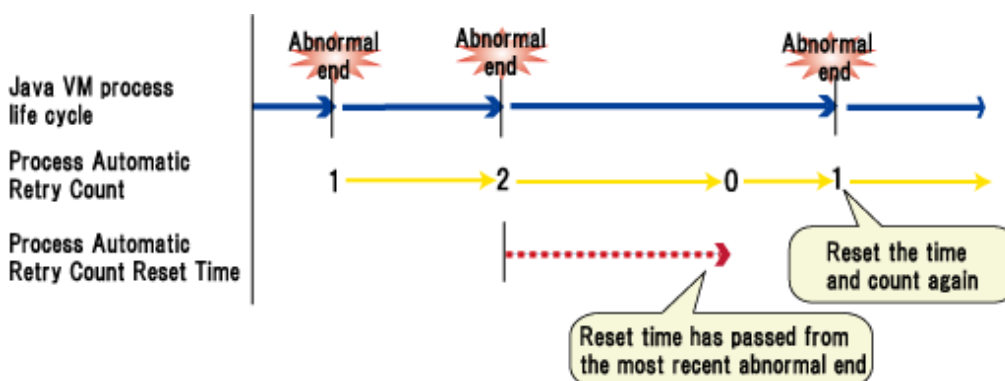
The valid range for the Process Automatic Retry Count is 0 to 255. The default is 0 (do not set an upper limit for the Automatic Retry Count).

Process Automatic Retry Count Reset Time

When a certain length of time has passed from the most recent abnormal end, the Process Automatic Retry Count up to that point is reset. The time for performing resets is specified in "Process Automatic Retry Count Reset Time".

The valid range for the Process Automatic Retry Count Reset Time is 0 to 65535. The default is 600 seconds.

The relationship between Process Automatic Retry Count and Process Automatic Retry Count Reset Time is shown in the following diagram:



6.2.3 Changing the PCMI Service Operation Definition

To change a PCMI service operation definition, change the PCMI service operation definition file.

Point

PCMI service operation definitions take effect when the PCMI service starts. If the PCMI service operation definition was changed while the PCMI service was running, it will take effect during the next startup.

Change the PCMI service operation definition with the following procedures:

1. [Editing the PCMI service operation definition file](#)
2. [Starting the PCMI service](#)

1. Editing the PCMI service operation definition file

| | |
|--------------------|---|
| File name | Windows32/64 [Java EE 6 common directory]\pcmi\isje6\conf\setting.conf Solaris32/64 Linux32/64 [Java EE 6 common directory]\pcmi\isje6\conf\setting.conf |
| Definition content | For details on the PCMI service operation definition file definition items, refer to " 7.1 PCMI Service Definition Items ". |

Example

```
maximumDaemonStartupTime=1200
maximumDaemonStopTime=60
maximumProcessReStartupTime=60
```

2. Starting the PCMI service

Start the PCMI service. For details on startup procedures, refer to "[4.2.2 Starting](#)".

6.3 IJServer Cluster Tuning

The tuning items detailed below are enabled in all applications that run on the IJServer cluster.

6.3.1 Java VM Heap and Permanent Area Size

The IJServer cluster Java VM heap area/Permanent area default values are as follows:

| Type | Default value |
|------------------------|---------------|
| Java VM heap area size | 512m |
| Java VM Perm area size | 192m |

The Java VM heap area/Permanent area size can be referenced or changed using the asadmin command. For details on how to reference or change these values, refer to the following:

- "[9.1.16.4 create-jvm-options Subcommand](#)"
- "[9.1.16.5 delete-jvm-options Subcommand](#)"

- ["9.1.16.6 list-jvm-options Subcommand"](#)

6.3.2 Number of Garbage Collections

Tune the number of occurrences of garbage collection according to the FJVM garbage collection configuration. For details, refer to "JDK/JRE Tuning" in the Tuning Guide.

Use `jconsole` to obtain the garbage collection occurrence status.



- As the port number of the connection target IJServer cluster, specify the RMI registry connection port number used by the JMX connector in "Port Number".
- For a connection to a remote process, specify the administrator user ID and administrator password as the user name and password.
- Do not operate MBean.

6.3.2.1 Occurrence Count for Automatic Garbage Collection using the RMI Feature

In the IJServer cluster, automatic garbage collection using the Java RMI feature runs at one-hour intervals (when the default value is used). To change the occurrence interval for automatic garbage collection using the RMI feature, change the values for the following Java VM options:

- `-Dsun.rmi.dgc.client.gcInterval=<occurrence interval>`
- `-Dsun.rmi.dgc.server.gcInterval=<occurrence interval>`

Occurrence interval: Specify a numeric value in milliseconds. The default value is 3600000 (one hour).

The Java VM option values can be changed using the `asadmin` command. For details, refer to the following:

- ["7.7.14 Java VM Definition Items"](#)

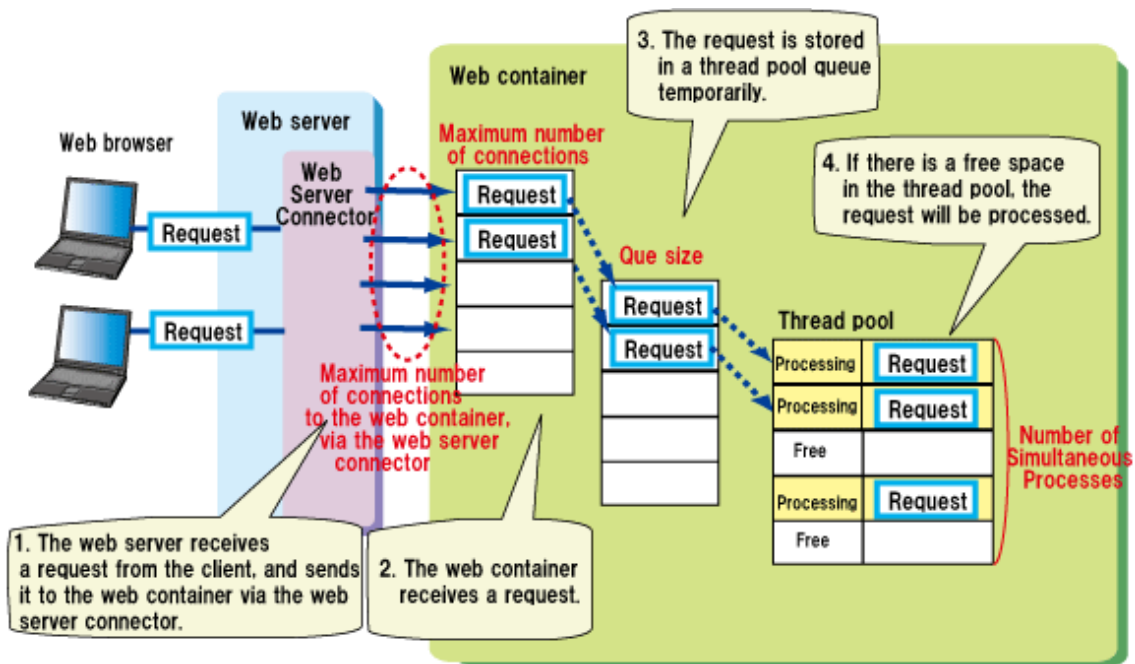
Note that, if the number of occurrences of garbage collection is not reduced even after the occurrence interval for automatic garbage collection using the RMI feature is tuned, the Java VM heap area size may be insufficient. In this case, the number of occurrences of garbage collection may be reduced by tuning the Java VM heap area size. Refer to ["6.3.1 Java VM Heap and Permanent Area Size"](#).

6.4 Web Container Tuning

This section explains the points that should be considered when tuning the web container.

6.4.1 Web Container Processing Flow

The web container receives requests from the client and processes them according to the following flow.



1. For operations using a web server, 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.
Note that, before the request is received, it waits in the HTTP listener socket backlog.
3. The request is stored in a thread pool queue temporarily.
4. If there is a free space in the thread pool, the request will be processed.

The above process can be tuned as follows:

- **Number of Simultaneous Processes** (Minimum pool size, Maximum pool size, Idle timeout)
 4. of the web container processing flow is related to the number of requests that can be processed simultaneously. The setting for 4. can be configured as "Minimum pool size" or "Maximum pool size".
- **Number of Connections** (maximum number of connections to the web container via the web server connector, maximum number of connections, queue size)
 - 1., 2., and 3. of the web container processing flow are related to the number of connections. The setting for 1. can be configured as "Maximum number of connections to the web container via the web server connector". The setting for 2. can be configured as "Maximum number of connections". The setting for 3. can be configured as "Queue size".

6.4.2 Number of Simultaneous Processes

When the number of simultaneous processes and the server instances are increased, 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 the EJB that is called from the application.

- [Enterprise Bean Instance Pooling](#)
- [Enterprise Bean Instance Caching](#)

- Number of JDBC Connections

The number of requests that can be processed simultaneously can be changed using the `asadmin` command. For details, refer to the following in "[7.7.15 Thread Pool Definition Items](#)":

- Minimum pool size(`min-thread-pool-size`)
- Maximum pool size(`max-thread-pool-size`)
- Idle timeout(`idle-thread-timeout-seconds`)

Note that, when tuning this value, change the thread pool definition item with the thread pool name "`http-thread-pool`".

6.4.3 Number of Connections

The number of connections is set 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.

| Item | Value |
|--|--|
| Maximum number of connections to the web container, via the web server connector | 0 (unlimited) |
| Maximum number of connections | A value that is sufficiently large for receiving the expected number of requests. |
| Queue size | A value that is sufficiently large for holding the expected number of requests that are waiting to be processed. |

- To disconnect requests that cannot be processed because the web container load is high, instead of waiting for a long time

| Item | Value |
|---|--|
| Maximum number of connections to the web container via the web server connector | Configure the number of connections that can be processed by the web container |
| Maximum number of connections | Configure a value that is sufficiently large to receive requests |
| Queue size | Configure the same value as the maximum number of connections |

The configuration items related to the number of connections are explained below.

Maximum number of connections to the web container via the web server connector

Control the number of requests sent to the web container by the web server connector. If the limit for the maximum number of connections to the web container is exceeded, the web server connector will return HTTP status code 500 (Internal Server Error) or 503 (Service Temporary Unavailable) to the client immediately when a new request is received.

- When the web server and the web container run on the same machine

This value can be changed using the `asadmin` command `update-web-server-connector-config` subcommand. For details, refer to the following:

"`--maxprocessors`" of "[9.1.10.7 update-web-server-connector-config Subcommand](#)"

- When the web server and the web container run on separate machines

On the machine used to run the web server, change this value using the `wscadmin` command `update-cluster-config` subcommand. For details, refer to the following:

"`--maxprocessors`" of "[9.14.3 update-cluster-config Subcommand](#)"

Maximum number of connections

When the value for this item is increased, the number of requests that can be received simultaneously by the web container increases. It is recommended that you specify the assumed number of requests that will be received simultaneously from the client in case a high-load state occurs during the operation.

The maximum number of connections can be changed using the `asadmin` command. For details, refer to the following:

- "Maximum number of connections(max-connections-count)" of "[7.7.3 Network Configuration Definition Items](#)"

Note

The maximum number of connections will be configured in the HTTP listener socket backlog used by the web container. The range of valid values for the socket backlog is determined by the operating system. For this reason, it does not necessarily mean that the value configured for the maximum number of connections will be valid.

For details on the range of valid values for the socket backlog, refer to the operating system documentation.

Note that, in Windows(R), any value greater than 200 will not be valid (the number of connections will be configured as "200").

Queue size

When the value for this item is increased, the number of requests received by the web container from the client that are retained so that they can be processed by the web container increases.

If it can be assumed that a high-load state will temporarily be entered, and the number of requests received will exceed the number that can be processed simultaneously, during the operation, reduce the number of requests that can be processed simultaneously and configure a sufficiently large value for the queue size to prevent degraded response of all servers.

- Configuration - Point 1

If a high-load state is temporarily entered, processing of the requests from the client fails, and the message shown below is output to the server log during the operation, increase the queue size.

```
doSelect exception
java.util.concurrent.RejectedExecutionException: The thread pool's task queue is full, limit: 200
```

- Configuration - Point 2

If the queue size is increased so that it is sufficient to process the requests, the response to requests from the client may become delayed. If linking with the web server, increase the web server connector send/receive timeout value.

The queue size can be changed using the `asadmin` command. For details, refer to the following:

- "Queue size(max-queue-size)" of "[7.7.15 Thread Pool Definition Items](#)"

6.4.4 Keep Alive

This section explains the keep alive connection tuning between the web container and web server connector (if linking with the web server) or web browser (when there is direct access).

Number of requests that can be processed in one connection

In this item, the number of requests that can be processed in one connection, and the enabling/disabling of keep alive, is configured.

The default value is "0" (keep alive disabled).

- If "0" is specified, keep alive is disabled.
The connection is closed whenever one request is complete, and a new connection is opened for the next request.
- If "-1" is specified, keep alive is enabled.
The HTTP connection is established after the web container returns a response but before the next request is received, so request transfer efficiency can be improved.
- If an integer of "1" or higher is specified, keep alive is enabled.
However, there is an upper limit for the number of requests that can be processed in one connection.

To connect to 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.

The number of requests that can be processed in one connection can be changed using the `asadmin` command. For details, refer to the following:

"Number of requests that can be processed in one connection(max-connections)" of "[7.7.3 Network Configuration Definition Items](#)"

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 sent on the understanding that the client is connected to the server, configure a value that is greater than the client timeout.

However, a value of 10 seconds or less should not be configured for this item.

Use the `asadmin` command to change the keep alive timeout value. For details, refer to "[7.7.3 Network Configuration Definition Items](#)", "Keep alive timeout".



Note

When keep alive is disabled, 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 time, the TCP/IP resources may be depleted.

If necessary, either enable keep alive, or refer to "Tuning TCP/IP Parameters" in the "System Tuning" chapter of the Tuning Guide, and tune the TCP/IP parameters.

6.5 EJB Container Tuning

Points to consider when tuning the EJB container are explained below.

6.5.1 Thread Pooling

If simultaneous requests are issued 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 reused within the thread pool.

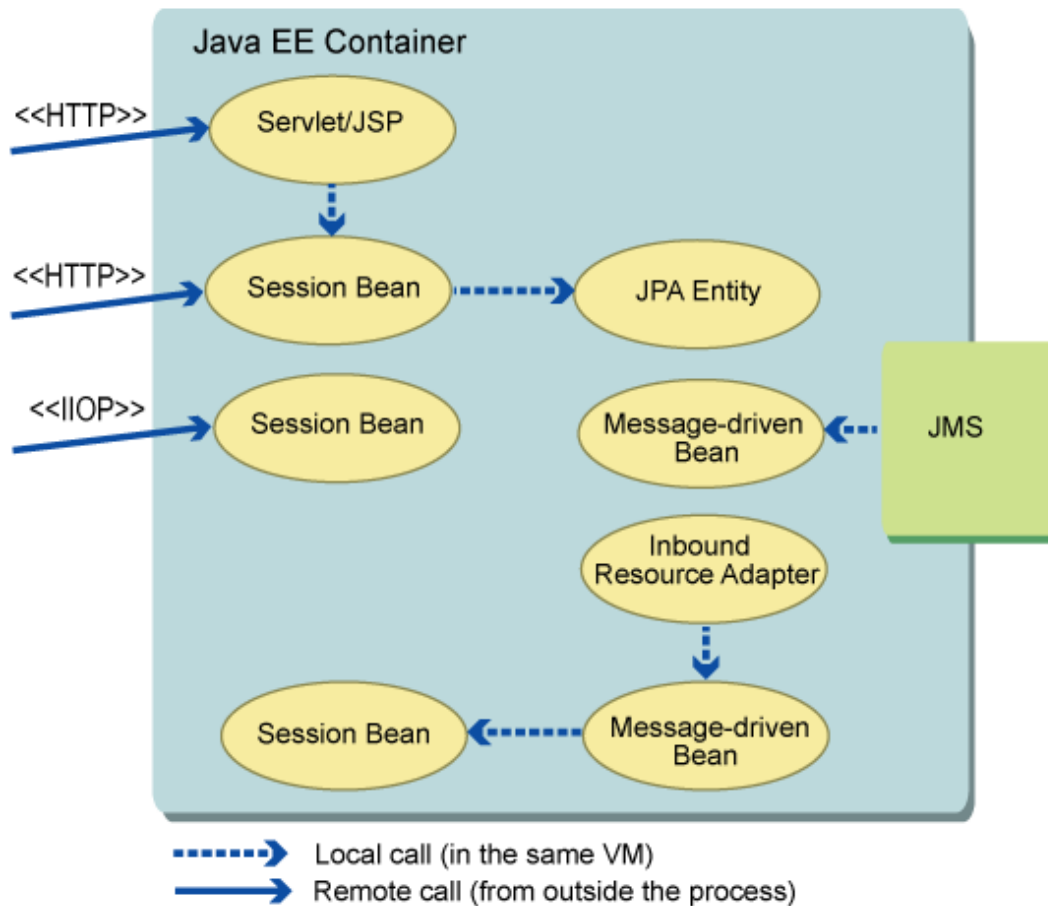
The following types of tuning can be performed for thread pooling.

- Control of the number of simultaneous EJB application processes
- Prioritization of 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
- When a Session Bean asynchronous method is executed

Note: For details, refer to "[Session Bean Asynchronous Processing Thread Pools](#)".

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 "[6.4 Web Container Tuning](#)" and "[6.7 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 JJSERVER cluster process starts, threads of the minimum pool size for the thread pool are created and stored in the pool.

Before request processing starts, a search is performed for the pool. If there are no threads in the pool, the thread is created and the request is 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 at a higher priority 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 standalone 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 below.

| Tuning item | Effect |
|-------------------|---|
| Minimum pool size | The response time can be reduced by specifying the number of requests that will be assumed to be issued simultaneously. |
| Maximum pool size | Memory and resources used by the thread pool can be controlled by the maximum value for the thread pool. |
| Idle Timeout | 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").

Note that the default thread pool configured during installation 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 x 2 (*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 resource adapters with no thread pool ID defined
```

- + Number of assumed simultaneously connected client processes
- + Assumed maximum client concurrency level (*1)
- + Number of call destination IJServer cluster processes (*2)

*1) This is the total assumed thread concurrency. However, if a JMS message is received and message-driven bean is executed, change this to "Assumed maximum client concurrency level x 2".

*2) This is the number of call destination IJServer cluster processes when other IJServer cluster EJB applications were called.

Note

When the default thread pool (thread-pool-1) is used, the threads will be switched frequently. For this reason, more threads may be used than the value that was estimated temporarily.

Creating the Thread Pool

The thread pool can be created using the asadmin command. For details, refer to the following:

- ["9.1.12.1 create-threadpool Subcommand"](#)

The value configured for the thread pool can be changed using the asadmin command. For details, refer to the following:

- ["7.7.15 Thread Pool Definition Items"](#)

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 ["3.2.1.3 Interstage EJB application deployment descriptor \(glassfish-ejb-jar.xml\)"](#)

Session Bean Asynchronous Processing Thread Pools

By specifying the @Asynchronous annotation in the Session Bean business method, that method will be executed asynchronously. By creating a thread pool for the execution thread in each EJB container and specifying the maximum pool size, the number of requests that can be processed simultaneously can be controlled.

For details on the asynchronous Session Bean thread pool configuration, refer to the following manual:

- ["Asynchronous Process Thread Maximum Pool Size"](#) of ["7.7.8 EJB Container Definition Items"](#)

6.5.2 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. Therefore, to control the amount of memory used, 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, and 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, and 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.

Cache Settings

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, memory usage can be reduced. |

| Tuning item | Effect |
|-------------------------------------|--|
| 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. |
| 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. |
| Delete policy for selected contents | 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. |

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. For details on how to estimate the amount of disk space required for session storage, refer to "[6.15.1 Disk Space Requirements](#)".

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 "[3.2.1.3 Interstage EJB application deployment descriptor \(glassfish-*ejb-jar.xml*\)](#)"

If the Enterprise Bean cache settings are not specified, the IJServer cluster value is used. This value can be modified using the `asadmin` command. For details, refer to the following:

- "[7.7.8 EJB Container Definition Items](#)"

Note

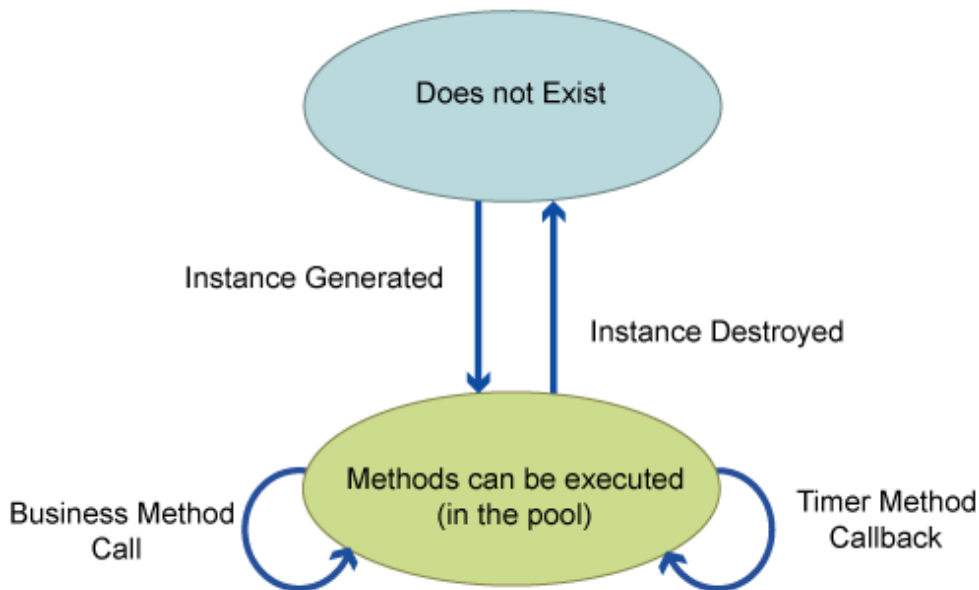
- If the Stateful Session Bean was undeployed when the IJServer cluster was in a stopped state, the resources under "Session storage location" will not be deleted. At this time, delete the resources after the application was undeployed.
- If the Stateful Session Bean was undeployed when the IJServer 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 forcibly, the EJB container closes without passivating the cached Bean instances.

6.5.3 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 below.



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 is 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 | Memory can be optimized by discarding excessive instances that are no longer necessary. |

Note

- Pool monitoring 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.
- 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 specified 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 ["3.2.1.3 Interstage EJB application deployment descriptor \(glassfish-ejb-jar.xml\)"](#)

If the Enterprise Bean cache settings are not specified, the IJServer cluster value is used. This value can be modified using the asadmin command. For details, refer to the following:

- ["7.7.8 EJB Container Definition Items"](#) or ["7.7.9 Message-driven Bean Default Pool Definition Items"](#)

6.5.4 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 specifications for when they are called in the same Java VM and via IIOP from outside the Java VM. The specifications 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 "<ejb>" "<pass-by-reference>" tags of ["3.2.1.3 Interstage EJB application deployment descriptor \(glassfish-ejb-jar.xml\)"](#)
-

6.6 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.

6.6.1 Persistence Context Cache

When the entity is obtained from the database using the 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.

When the entity is obtained from the database using the entity manager, or the entity that was created 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 the persistence context.

Persistence context cache functionality is explained below.

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, "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 specifications. 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.



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 for 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 |
|----------------------------|---------------------------------------|--|
| QueryHints.REFRESH | HintValues.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. |
| | HintValues.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. |
| QueryHints.REFRESH_CASCADE | CascadePolicy.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. |
| | CascadePolicy.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. |
| | CascadePolicy.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. |

To enable the QueryHints.REFRESH_CASCADE hint settings, HintValues.TRUE must be specified for the QueryHints.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=QueryHints.REFRESH,
        value=HintValues.TRUE),
        @QueryHint(name=QueryHints.REFRESH_CASCADE,
            value=CascadePolicy.CascadeAllParts)})
    
```

6.6.2 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.

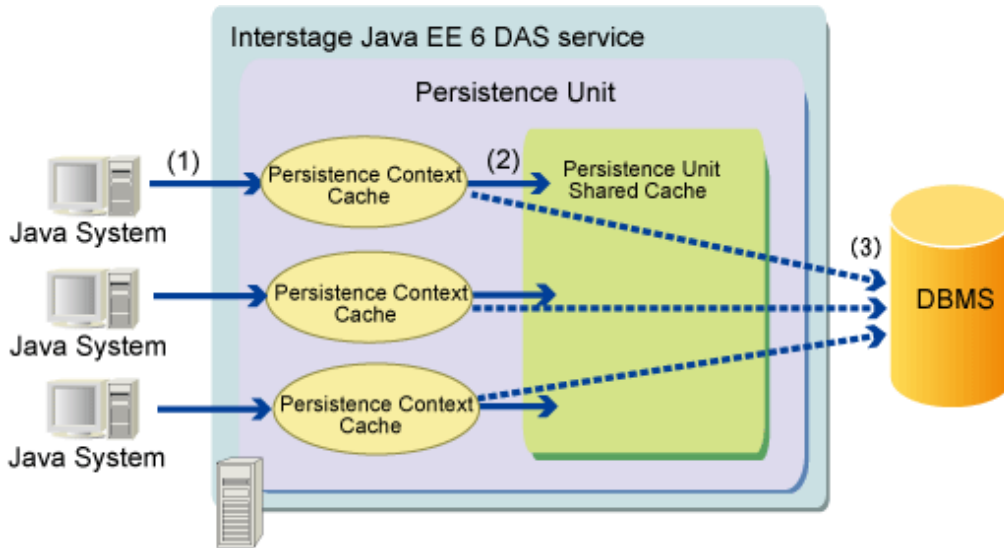
Shared Cache Reference Timing

For details on the shared cache reference timing, refer to "6.6.1 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 "2.11.6 Lock Functionality for the Line".

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 |
|---------------------------------|--|--|
| eclipselink.cache.type.<ENTITY> | - Full | This is a shared cache type for a specific entity |
| | - Weak | |
| eclipselink.cache.type.default | - HardWeak | This is another entity shared cache type |
| | - SoftWeak | |
| eclipselink.cache.size.<ENTITY> | 0-MAX_INTEGER Default value: 100 | This is the shared cache type size for a specific entity |

| Property name | Value (Bold: Default value) | Explanation |
|-----------------------------------|-----------------------------|--|
| eclipselink.cache.size.default | | This is the shared cache type size for another entity |
| eclipselink.cache.shared.<ENTITY> | - true - false | The shared cache for the specific entity is enabled/disabled |
| eclipselink.cache.shared.default | | The shared cache for the other entity is enabled/disabled |

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 references 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_2_0.xsd"
  version="2.0">
<persistence-unit name="com.company.my.pu">
  <jta-data-source>jdbc/myDatasource</jta-data-source>
  <properties>
    <property name="eclipselink.cache.type.CountryCode" value="Full"/>
    <property name="eclipselink.cache.size.CountryCode" value="100"/>
    <property name="eclipselink.cache.shared.StockQuote" value="false"/>
    <property name="eclipselink.cache.size.default" value="200"/>
  </properties>
</persistence-unit>
</persistence>

```

From JPA 2.0, the following two tuning options are added:

- shared-cache-mode
- Cache mode properties

For details on how to set these options, refer to the JPA specifications.

6.7 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 "[6.4 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 "[6.5.3 Enterprise Bean Instance Pooling](#)".

6.8 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 Validation
- Transaction Management
- Detail Attributes

Tune these items using the `asadmin` command. For details, refer to the following:

- "[9.1.4 Subcommands - Category: Referencing/Updating Definition Items](#)"
- "[9.1.14.1 create-jdbc-connection-pool Subcommand](#)"
- "[7.5.1 JDBC Connection Pool Definition Items](#)"

Additionally, update definition items in Detail attributes after the JDBC connection pool has been created.

6.8.1 Number of Connections in the Pool

The following can be configured 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 IIServer cluster or Interstage Java EE 6 DAS service is stopped.

- Initial and Minimum pool size
- Maximum pool size
- Change in pool size
- Idle Timeout
- Maximum wait time

Tune these items using the asadmin command.

When creating the JDBC Connection Pool, refer to "[9.1.14.1 create-jdbc-connection-pool Subcommand](#)".

When updating the JDBC Connection Pool item, refer to "[9.1.4 Subcommands - Category: Referencing/Updating Definition Items](#)" or "[7.5.1 JDBC Connection Pool Definition Items](#)".

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 to check the performance of pool resizing. Resizing for pool monitoring 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 problems were detected when "On Any Failure" is enabled (*2)

*1 The pool is initialized when the IIServer cluster or Interstage Java EE 6 DAS service receives the first connection request from the application.

*2 For details on conditions considered as connection problems, refer to "[6.8.2 Connection Validation](#)".

In pool resize task, all unauthorized connections where Idle Timeout or connection validation 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 unauthorized 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, connections are added until the minimum value is reached.

Specifically, processing is executed according to the following procedure. The following definitions are used by way of explanation.

| |
|--|
| $\begin{aligned} \text{[Number of connections in the pool]} &= \text{[Number of connections that have not been used]} + \text{[Number of connections that are in use]} \\ \text{[Number of intended deletions]} &= \text{[Change in pool size]} - \text{[Number of connections deleted in the processing of 1. and 2. below.]} \\ \text{[Number of allowable deletions]} &= \text{[Number of connections in the pool]} - \text{[Initial and Minimum pool size]} \end{aligned}$ |
|--|

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 validation, refer to "[6.8.2 Connection Validation](#)".
3. Delete only the maximum number of intended deletions
If the following conditions are met, a search is performed for unused connections and [Number of intended deletions] is used as the maximum value for deletion from the pool. If these conditions are not met, 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 met for the processing result of 1. through 3. above, 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 pool size so that the pool resize quantity is not exceeded.

- Connection matching is successful
- Connection validation is successful

The behavior in the pool at the time of scaleup is shown below. The following two definitions are used in the explanation:

$$[\text{Number of connections in the pool}] = [\text{Number of connections that have not been used}] + [\text{Number of connections that are in use}]$$

$$[\text{Number of additional connections allowed}] = [\text{Maximum pool size}] - [\text{Number of connections in the pool}]$$

| 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 additional connections allowed] 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 validation failure.

*2 If there are unused connections for which connection matching fails, the number of connections 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 ["5.7 Authentication Information at the time of Resource Access"](#).

6.8.2 Connection Validation

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 problems or problems 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 configured when connection validation is enabled:

- Validation method
- Table name
- On Any Failure

Tune these items using the asadmin command.

When creating the JDBC Connection Pool, refer to ["9.1.14.1 create-jdbc-connection-pool Subcommand"](#).

When updating the JDBC Connection Pool item, refer to ["9.1.4 Subcommands - Category: Referencing/Updating Definition Items"](#), or ["7.5.1 JDBC Connection Pool Definition Items"](#).

The application server executes connection validation when enabled as follows.

Execution Timing for Connection Validation

A) Connection Validation for periodic pool monitoring

Executed periodically at idle timeout intervals.

B) Connection Validation 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 validation 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 validation 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.

- If "On Any Failure" is enabled

As there are temporarily no connections in the pool in "On Any Failure" processing, a new connection is generated. If, at this point, connection reestablishment is complete and there are unused connections, these connections are discarded and the connection is returned to the requester.

- If "On Any Failure" is disabled

The connection for which verification failed is deleted, the next connection is removed from the pool, and connection validation is re-executed. For details on the behavior when connection validation fails for all unused connections in the pool, refer to ["Scaleup of Pool Size for Connection Requests"](#).



Note

When the pooling feature is disabled in Interstage, connection validation will only be executed before the connection that is generated is stored in the pool (B1).

Conditions for Which Connection Problems are Considered to have Occurred

Conditions considered as connection problems when "On Any Failure" is enabled are as follows:

- An exception is returned from the JDBC driver when connection validation is executed



Note

- 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 validation 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 validation and to improve processing performance, disable connection validation if necessary.

- If the connection validation has been set as disabled, the specified validation method and Table name will also be disabled.
-

6.8.3 Transaction Management

The following can be configured in JDBC connection pool transaction management. For details, refer to ["3.1.7 Creating Applications that Connect to the Database"](#).

- Non-transaction connection
- Only join connection after the transaction has started
- Transaction block
- Block level

Tune these items using the asadmin command.

When creating the JDBC Connection Pool, refer to ["9.1.14.1 create-jdbc-connection-pool Subcommand"](#).

When updating the JDBC Connection Pool item, refer to ["9.1.4 Subcommands - Category: Referencing/Updating Definition Items"](#) or ["7.5.1 JDBC Connection Pool Definition Items"](#).

6.8.4 Detail Attributes

The following can be configured to tune JDBC connection pools that have already been defined.

- Statement timeout
- Pooling
- Leak timeout
- Leak reclaim
- Creation retry count
- Retry interval

Tune these items using the asadmin command.

Refer to ["9.1.4 Subcommands - Category: Referencing/Updating Definition Items"](#) and ["7.5.1 JDBC Connection Pool Definition Items"](#).



Notes about statement timeouts

- If Symfoware Native SQL is used for the database, 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 for "statement timeout" of the JDBC Connection Pool that will be used to the value that was estimated for the SQL statement execution time or environment that will be issued by the application.

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
- On Any Failure

6.9 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 Validation
- Transaction Management
- Shutdown Timeout

Tune these items using the asadmin command. For details, refer to the following:

- ["9.1.4 Subcommands - Category: Referencing/Updating Definition Items"](#)
- ["9.1.14.21 create-connector-connection-pool Subcommand"](#)
- ["7.5.6 Connector Connection Pool Definition Items"](#)
- ["7.7.6 Connector Service Definition Items"](#)

6.9.1 Number of Connections in the Pool

The following can be configured 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 6 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 to check 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 problems were detected when "On Any Failure" is enabled (*2)

*1 The pool is initialized when the IJServer cluster or Interstage Java EE 6 DAS service receives the first connection request from the application.

*2 For details on conditions considered as connection problems, refer to ["6.9.2 Connection Validation"](#).

In pool resize task, all unauthorized connections where Idle Timeout or Connection Validation 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 unauthorized 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, connections are added until the minimum value is reached.

Specifically, processing is executed according to the following procedure. The following definitions are used by way of explanation.

$$[\text{Number of connections in the pool}] = [\text{Number of connections that have not been used}] + [\text{Number of connections that are in use}]$$

$$[\text{Number of intended deletions}] = [\text{Change in pool size}] - [\text{Number of connections deleted in the processing of 1.-2.}]$$

$$[\text{Number of allowable deletions}] = [\text{Number of connections in the pool}] - [\text{Initial and Minimum pool size}]$$

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 validation, refer to "[6.9.2 Connection Validation](#)".
3. Delete only the maximum number of intended deletions
If the following conditions are met, a search is performed for unused connections and [Number of intended deletions] used as the maximum for deletion from the pool. If these conditions are not met, 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 met for the processing result of 1 through 3 above, 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 pool size so that the pool resize quantity is not exceeded.

- Connection matching succeeds
- Connection validation succeeds

The behavior in the pool at the time of scaleup is shown below. The following two definitions are used in the explanation:

$$[\text{Number of connections in the pool}] = [\text{Number of connections that have not been used}] + [\text{Number of connections that are in use}]$$

$$[\text{Number of additional connections allowed}] = [\text{Maximum pool size}] - [\text{Number of connections in the pool}]$$

| 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 | If [Maximum pool size] is exceeded when [Change in pool size] is generated |
| | Only [Change in pool size] connections are generated. | Only [Number of additional connections allowed] connections are generated. |

| Conditions | Behavior in the pool |
|--------------------------------|-------------------------------------|
| 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 validation 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 specifications. 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 "[5.7 Authentication Information at the time of Resource Access](#)".

- 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.

6.9.2 Connection Validation

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 problems or problems 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 configured for connection validation.

- Connection validation
- On Any Failure

Success/failure of connection validation

When connection validation 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 problems have already been detected in the target connection before connection validation is executed

Connection Validation Execution Mechanism

A) Connection validation for periodic pool monitoring

Executed periodically at idle timeout intervals. For details on the behavior when connection validation fails, refer to "[Regular Pool Monitoring\(Pool Size Scaledown\)](#)".

B) Connection validation 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 validation fails, the behavior will depend on whether "On Any Failure" is enabled.

- If "On Any Failure" is enabled

As there are temporarily no connections in the pool in "On Any Failure" processing, a new connection is generated. If, at this point, connection reestablishment is complete and there are unused connections, these connections are discarded and the connection is returned to the requester.

- If "On Any Failure" is disabled

The connection for which verification failed is deleted, the next connection is removed from the pool, and connection validation is re-executed. For details on the behavior when connection validation fails for all unused connections in the pool, refer to "[Scaleup of Pool Size for Connection Requests](#)".

Conditions for which Connection Problems are Considered to have Occurred

Conditions for which connection problems are considered to have occurred when "On Any Failure" 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 "On Any Failure", implement notification processing for connection problems with EIS.



- An exception is returned when the connection could not be re-established.
- There are slight performance overheads for connection validation.

6.9.3 Transaction Management

The following can be configured in connector connection pool transaction management.

- Transaction support

6.9.4 Shutdown Timeout

The following can be configured 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 the Interstage Java EE 6 DAS service and IJServer cluster units, and is applied for all resource adapters that were deployed to the target that was set.

Configure the settings using the `asadmin` command `set` subcommand. For details, refer to "[7.7.6 Connector Service Definition Items](#)".



The resource adapter stop processing is performed in the following order:

1. `endpointDeactivation()` method
2. `stop()` method

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().

6.10 Transaction Service Tuning

This section explains how tune transaction service.

For details on each definition item, refer to "7.7.13 Transaction Service Definition Items".

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:

$$\text{Keypoint interval} \times 0.0005\text{MB} + 0.15\text{MB}$$

6.11 ORB Tuning

This section explains Object Request Broker (ORB) tuning.

6.11.1 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.

Configuration items

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. (*2) | 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. (*3)(*4) (*5) (*6) This is enabled only when the Java EE application is called. | 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 standalone client is used, the ORB settings shown below can be changed.

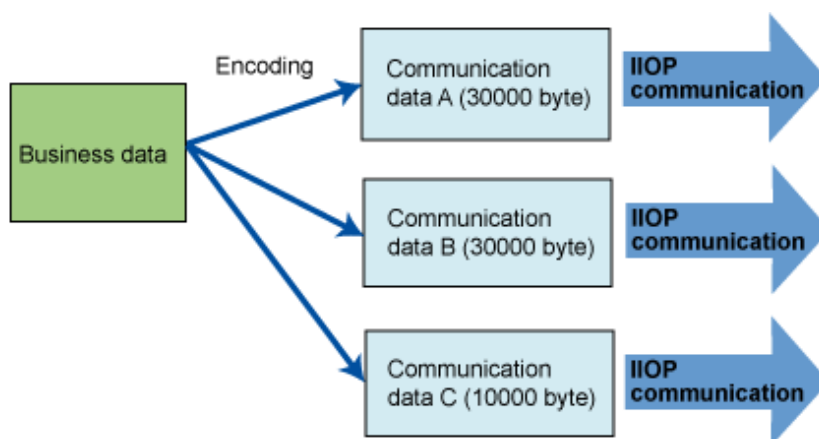
| ORB setting | Default value | Meaning | Effect |
|---|---------------|---|---|
| Maximum message fragment size (Unit: bytes) | 4096 | Set the maximum IIOp message fragment size. (*3) (*4) (*5) (*6) This is enabled only when the Java EE application is called. | IIOp message encoding processing is performed 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) 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.

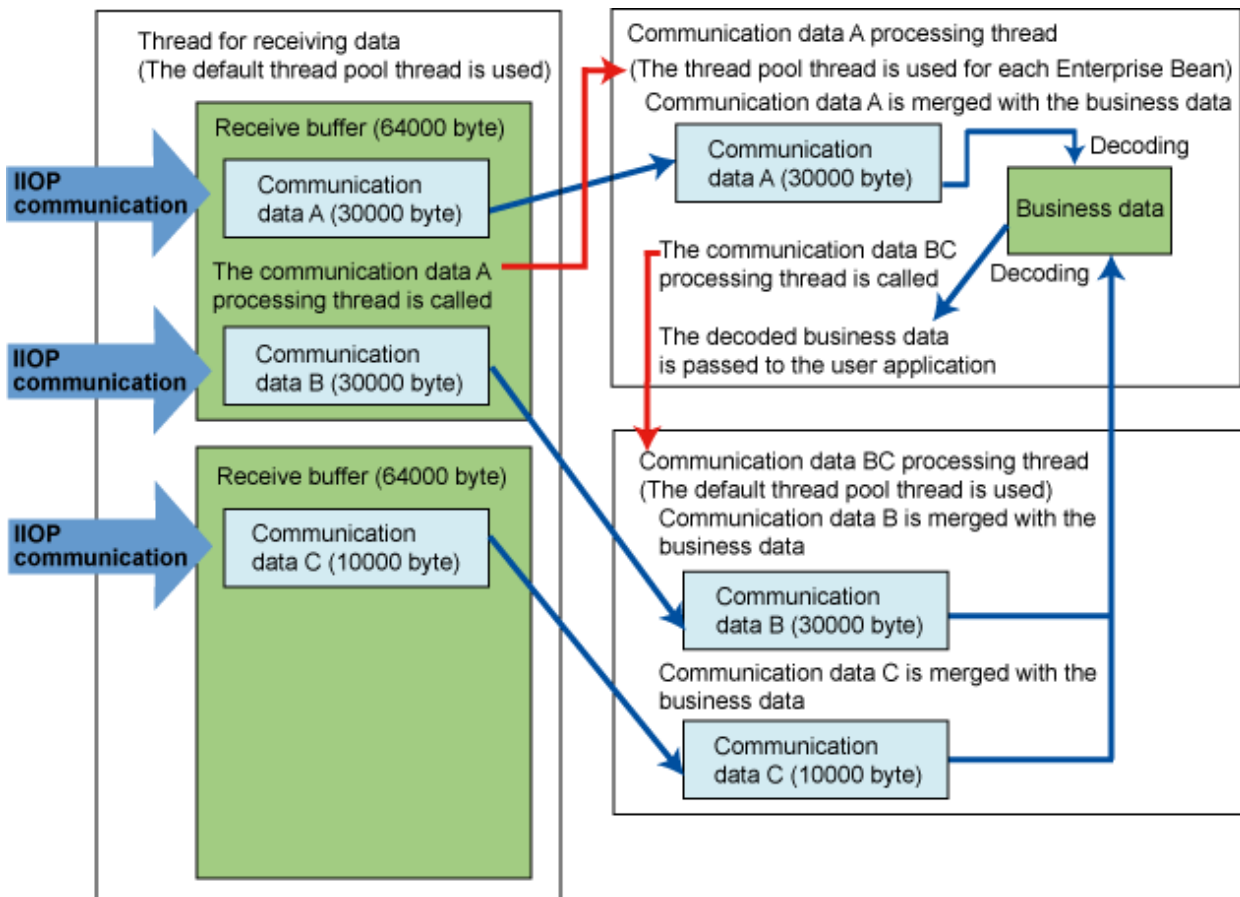
*2) If the number of connections exceeds this value, idle state connection recovery (where the connection is broken) is performed. If the number of connections that are being used reaches the total number of connections and an attempt is made to launch a new connection, the new connection itself will be recovered.

*3) 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 in the receive buffer of the receiver, it is decoded as business data, starting with the leading data, and then passed to the user application.



*4) 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.

For details on estimating the number of threads, refer to "6.5.1 Thread Pooling".

*5) If a value of 256000 or greater is specified, a value greater than this must be specified for the connection destination maximum receive buffer size. For details on the maximum receive buffer size, refer to "6.11.2 Notes on Communication Data Size".

*6) The value that was specified 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

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

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.

Configuration Method

Total number of connections

This can be changed/referenced using the asadmin command. For details, refer to "[Total number of connections](#)".
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 asadmin command. For details, refer to "[Maximum message fragment size](#)".
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 "[4.9.1 Setting the Java EE Application Client Environment](#)".

- When a standalone client is used

Set the following value in the Java VM option:

```
-Dcom.sun.corba.ee.giop.ORBFragmentSize=Value
```

6.11.2 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 Range

256000 to 2147483647 (bytes)

Default Value

256000

Setting Method

- When a standalone 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 "[4.9.1 Setting the Java EE Application Client Environment](#)".

- When the settings are configured in the IJServer cluster

Using the asadmin command, configure the setting in the Java VM option. For details, refer to "[JVM options](#)".

When this setting is changed, the IJServer cluster must be restarted.

```
-Dcom.sun.corba.ee.transport.ORBMaximumReadByteBufferSize=Value
```

The data that was received from the connection destination is stored in the receive buffer. The receive buffer size is doubled each time by the received data size, from an initial value of 64000 bytes configured during installation to the value configured 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 or later

Because of the operating system specification (KB2020447), a processing delay of five 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:

- When maximum message fragment size is enabled
Set a maximum message fragment size of less than 65536 bytes.
- When maximum message fragment size is disabled

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

6.12 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 (OM3204). These warning messages are shown below. Detailed warning messages provide relevant information for the event types.

- [Alert Monitoring Warning Message \(Java Heap\)](#)

The Java VM memory allocation pool (*1) and Permanent generation space are monitored, and a warning message is generated when the possibility of insufficient Java Heap is identified.

- [Alert Monitoring Warning Message \(Garbage Collection\)](#)

A warning message is generated when a possible degradation 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.

Note

- Even if a predictor is detected on the same Java VM process, if the detail message contained in the warning message is the same, the output of messages will be suppressed for 10 minutes from the previous message output in order to prevent the output of an excessive number of messages for the same cause.
- If the Java application runtime environment has changed, 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 occurrence status may change.
As a result, this message, which was not output in the existing environment, may be output in the runtime environment following the change. For this reason, even if the Java application itself has not changed, return the settings for the Java heap if the Java application runtime environment has changed for any of the following reasons:
 - 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 operating system was changed

6.13 Interstage Java EE 6 DAS Service Heap Size

Heap size

If a large number of applications were deployed, then the Interstage Java EE 6 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 6 DAS service heap size from the default value of 512MB.

Example:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-jvm-options \-Xmx512m
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jvm-options \-Xmx1024m
```

Solaris32/64 Linux32/64

```
/opt/FJSVIsje6/glassfish/bin/asadmin delete-jvm-options \-Xmx512m
/opt/FJSVIsje6/glassfish/bin/asadmin create-jvm-options \-Xmx1024m
```

In the above setting, Interstage Java EE 6 DAS service must be running. If Interstage Java EE 6 DAS service cannot start, refer to "[Action when Interstage Java EE 6 DAS Service does not Start](#)".

Action when Interstage Java EE 6 DAS Service does not Start

If the Interstage Java EE 6 DAS service does not start because there is insufficient memory, edit domain.xml according to the procedure below.

domain.xml storage destination

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\config\domain.xml
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/config/domain.xml
```

Procedure for the Edit

1. Stop Interstage Java EE 6 DAS service.

If normal stop cannot be performed, then restart the system after this step.

2. Increase the heap size in domain.xml.

Using a text editor, open domain.xml, and change <jvm-options> from -Xmx1024m to -Xmx512m:

```
<domain>
<configs>
<config dynamic-reconfiguration-enabled="true" name="server-config">
<java-config>
<jvm-options>-Xmx512m</jvm-options>
```

3. Restart the Interstage Java EE 6 DAS service. If a failure occurred when normal stop was performed, then restart the system.

6.14 Correlative Time Monitoring Function Relationships

In the network communication that occurs in the functions 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 unintentionally leftover objects 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'.

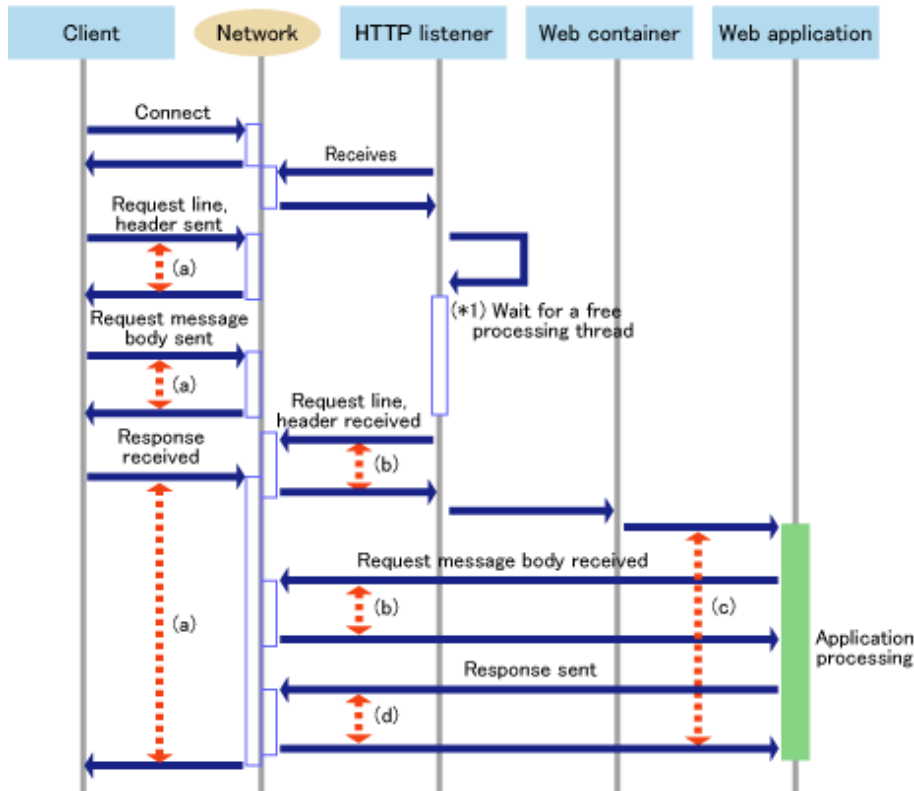
When the problem is detected by the timeout, the caller decides whether processing should be suspended or re-executed. Therefore, in general, the closer the timeout period is to the caller, the larger the value that is set.

In the correlative relationship figure below, 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.

6.14.1 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:

- "6.4.1 Web Container Processing Flow"

| Monitoring target | Time monitoring feature |
|-------------------|---|
| (a) | Web server connector send/receive timeout |
| (b) | Connection upload timeout |
| (c) | Maximum Application Processing Time |
| (d) | Send timeout |

These time monitoring features and their correlations are explained below.

(a) Web server connector send/receive timeout

The web server connector monitors the wait time (in seconds) for the sending/receiving of data packets between the HTTP listener and web container. If the data packet cannot be sent to or received from the web container because the send/receive timeout value was exceeded, the web server connector will return HTTP status code 500 (Internal Server Error) to the client. Additionally, if the timeout occurs when the data packet is sent, IJServer12035 is output to the web server connector log (jk2.log). If the timeout occurs when the data packet is received, IJServer12044 is output to the web server connector log (jk2.log).



This item is monitored by the web server connector only in operations where a web server is used. At this time, the web server connector corresponds to "Client" in the Correlative relationship figure above.

Configure each setting so that the following relationship is satisfied:

(a) > (b) + (c) + as in the figure above (*1)
(a) > (d)

(b) Connection upload timeout

The HTTP listener and web container monitor the wait time for the receiving of data packets from the client.

If this timeout is exceeded, the web container will suspend the loading of the data. No message is output when this timeout occurs.

Normally, configure each setting so that the following relationship is satisfied:

(c) > (b)

(c) Maximum Application Processing Time

The processing time from calling the user application until the return is monitored. The monitoring target time also includes the read time of the request message body.

On the other hand, the time until the sending of the response is complete is not included, except in the following cases:

- When HTTP access logs are enabled
- When flush is used in the application

The following can be selected as the behavior when this timeout is exceeded:

- Output WARNING message
- Stop process by force

For details, refer to "[2.5.3 Monitoring the Maximum Application Processing Time](#)".

(d) Send timeout

The wait time when the data packet is sent to the client.

If this timeout is exceeded, the web container will suspend sending the data. In this case, incomplete response data will be sent to the client. Note that no message is output when this timeout occurs.

Configure the setting so that the following relationship is satisfied:

(c) > (d)

This parameter must be configured in the JVM option shown below. The unit is milliseconds. Note that the send timeout will try to write the configured value three times.

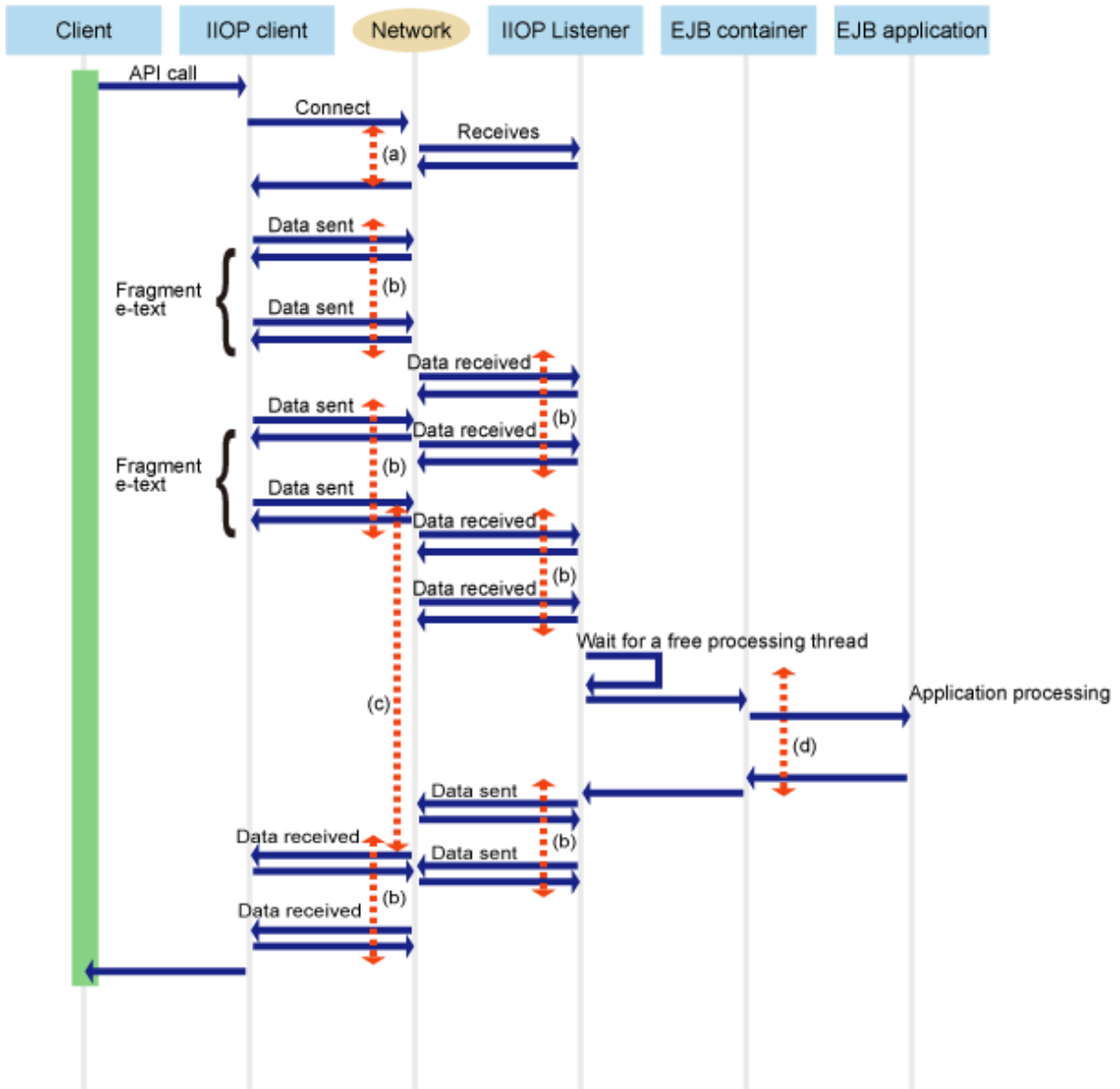
To configure 120 seconds as the send timeout, configure 40000 (milliseconds).

The default value is 30000 (milliseconds).

`-Dcom.sun.grizzly.writeTimeout=<configured value>`

6.14.2 IIOP Communication

Correlative relationship

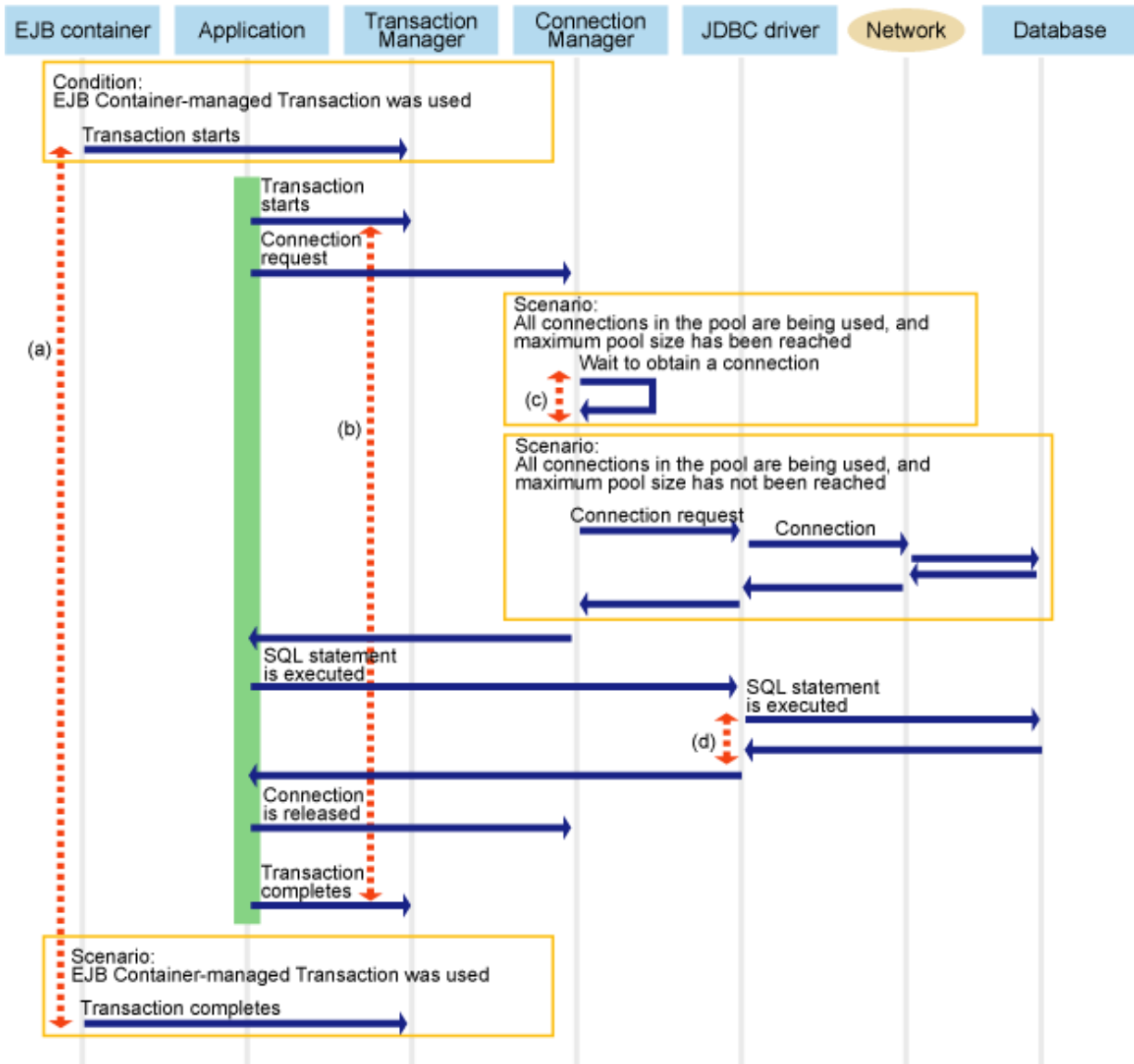


Time monitoring items

| Time monitoring interval | Time monitoring function |
|--------------------------|---|
| (a) | Wait Time Monitoring Functionality for IIO Connection |
| (b) | Wait Time Monitoring Functionality for Sending/receiving the IIO Communication Socket |
| (c) | Recovery Time Monitoring Functionality from the Server at the time of IIO Communication |
| (d) | Maximum application processing time monitoring function |

6.14.3 Transactions and Database Access

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 |

6.15 Resource Requirements

6.15.1 Disk Space Requirements

The disk space required to use Java EE 6 is shown below.

| Directory | Disk space required (MB) | Remarks (intended application) |
|---|--|--|
| [Java EE 6 common directory] | Total size of the resources after the deployment file is extracted x 2 | Formula for Java EE application resources |
| <p>Windows32/64 [Java EE 6 common directory]\domains\domain1\applications</p> <p>Solaris32/64 Linux32/64 [Java EE 6 common directory]/domains/domain1/applications</p> | <p>Size of the resources that unpack the following applications to be deployed:</p> <ul style="list-style-type: none"> - Enterprise application (.ear) - Web applications (.war) - EJB modules (.jar) - Connector modules (.rar) - Application clients (.jar) | |
| <p>Windows32/64 [Java EE 6 common directory]\domains\domain1\generated</p> <p>Solaris32/64 Linux32/64 [Java EE 6 common directory]/domains/domain1/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 product capacity first.</p> | |
| <p>Windows32/64 [Java EE 6 common directory]\commands</p> <p>Solaris32/64 Linux32/64 [Java EE 6 common directory]/commands</p> | Maximum 4MB | |
| <p>Windows32/64 [Java EE 6 common directory]\domains\domain1\imq\instances\\${message broker instance name}</p> <p>Solaris32/64 Linux32/64 [Java EE 6 common directory]/domains/domain1/imq/instances\\${message broker instance name}</p> | <p>Add the values of the following calculations to the initial value of 15 MB.</p> <ul style="list-style-type: none"> - Total calculated below for each physical storage destination: Maximum number of accumulated messages x (message size x 2 + 0.0003) - Size configured in the imq.log.file.rolloverbytes property x 10 | To start multiple message brokers, calculate the values shown in the previous column for each message broker and then add them together to determine the required disk space. |
| [Transaction log file folder] | Keypoint interval x 0.0005MB + 0.15MB | Transaction log file folder |
| [Session storage location] | <p>passivated bean instance file size x number of passivated bean instances</p> <p>The bean instance file size and the passivated quantity will depend on the application deployed and on the application operation method.</p> | Refer to " 6.5.2 Enterprise Bean Instance Caching ". It is recommended that you perform EJB container definition tuning, load testing, and a dry run of the application to estimate the amount of disk space required. |

| Directory | Disk space required (MB) | Remarks (intended application) |
|--|---|--------------------------------|
| <p>server log (Note 1)</p> <p>Windows32/64</p> <ul style="list-style-type: none"> - When the IJServer cluster is used: [Java EE 6 common directory]\nodes\localhost-domain1\<server instance="" name="">\logs</server> - When the Interstage Java EE 6 DAS service is used: [Java EE 6 common directory]\domains\domain1\logs <p>Solaris32/64 Linux32/64</p> <ul style="list-style-type: none"> - When the IJServer cluster is used: [Java EE 6 common directory]/nodes/localhost-domain1/<server instance name>/logs - When the Interstage Java EE 6 DAS service is used: [Java EE 6 common directory]/domains/domain1/logs | <ul style="list-style-type: none"> - When size rotation is specified Log size for server log x (number of log file generations to be saved + 1) - When time rotation is specified Output size per day x (number of log file generations to be saved + 1) <p>Note: 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 0.006 MB is output just in the start and end processing for the server instance.</p> <p>Note: The log size and number of log file generations to be saved are values that were specified as logger definition items.</p> | |
| <p>Java VM log</p> <p>Windows32/64</p> <p>[Java EE 6 common directory]\pcmi\isje6\logs\<server instance="" name=""></server></p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE 6 common directory]/pcmi/isje6/logs/<server instance name></p> | <ul style="list-style-type: none"> - When size rotation is specified Log size x (Number of log file generations to be saved + 1) - When time rotation is specified Output size per day x (Number of log file generations to be saved + 1) <p>Note: 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 0.003 MB is output just in the start and end processing for the server instance.</p> <p>Note: The Java VM log size and the number of log file generations to be saved are the values that were specified in the PCMI profile.</p> | |
| <p>HTTP access log (Note 2)</p> <p>Windows32/64</p> <ul style="list-style-type: none"> - When the IJServer cluster is used: [Java EE 6 common directory]\nodes\localhost-domain1\<server instance="" name="">\logs\access</server> - When the Interstage Java EE 6 DAS service is used: [Java EE 6 common directory]\domains\domain1\logs\access <p>Solaris32/64 Linux32/64</p> | <ul style="list-style-type: none"> - When size rotation is specified Log size x (Number of log file generations to be saved + 1) - When time rotation is specified Output size per day x (Number of log file generations to be saved + 1) - When rotation at one-day intervals is specified Output size per day x (Number of log file generations to be saved + 1) | |

| Directory | Disk space required (MB) | Remarks (intended application) |
|--|---|--|
| <ul style="list-style-type: none"> - When the IJServer cluster is used: [Java EE 6 common directory]/nodes/localhost-domain1/<server instance name>/logs/access - When the Interstage Java EE 6 DAS service is used: [Java EE 6 common directory]/domains/domain1/logs/access | <p>Note: The log size and number of log file generations to be saved are values that were specified as HTTP service definition items.</p> | |
| <p>HTTP trace log</p> <p>Windows32/64</p> <ul style="list-style-type: none"> - When the IJServer cluster is used: [Java EE 6 common directory]/nodes/localhost-domain1/<server instance name>/logs/http - When the Interstage Java EE 6 DAS service is used: [Java EE 6 common directory]/domains/domain1/logs/http <p>Solaris32/64 Linux32/64</p> <ul style="list-style-type: none"> - When the IJServer cluster is used: [Java EE 6 common directory]/nodes/localhost-domain1/<server instance name>/logs/http - When the Interstage Java EE 6 DAS service is used: [Java EE 6 common directory]/domains/domain1/logs/http | <p>Log size for HTTP trace log x (number of log file generations to be saved + 1)</p> <p>Note: The log size and number of log file generations to be saved are values that were specified as HTTP service definition items.</p> | |
| <p>PCMI service installation log</p> <p>Windows32/64</p> <p>System environment variable windir</p> <p>Solaris32/64 Linux32/64</p> <p>/tmp</p> | <p>Maximum 2 MB</p> | <p>Audit log when there is a PCMI service installation/uninstallation problem</p> |
| <p>Java EE 6 installation log</p> <p>Windows32/64</p> <p>System environment variable TEMP</p> <p>Solaris32/64 Linux32/64</p> <p>/tmp</p> | <p>Maximum 5 MB</p> | <p>Audit log when there is a Java EE 6 feature installation/uninstallation problem</p> |
| <p>PCMI service trace log</p> <p>Windows32/64</p> <p>[Java EE 6 common directory]/pcmi/isje6/trace</p> <p>Solaris32/64 Linux32/64</p> <p>[Java EE 6 common directory]/pcmi/isje6/trace</p> | <p>Maximum 18 MB</p> | <p>Audit log when there is a PCMI service operation problem</p> |
| <p>Deployed application temporary file</p> <p>Windows32/64</p> | <p>This depends on the configuration of the application to be deployed.</p> | <p>File namegendContent*.zip ("*" can be any string)</p> |

| Directory | Disk space required (MB) | Remarks (intended application) |
|---|--|--|
| Directory specified in the "java.io.tmpdir" system property Solaris32/64 Linux32/64 /tmp/ | 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. | is created. This file will be deleted when the Interstage Java EE 6 DAS service stops. |
| Server instance temporary directory Windows32/64 Directory specified in the "java.io.tmpdir" system property Solaris32/64 Linux32/64 /tmp/ | 0.0005 MB x Number of server instances | Directory namefileinstall-* ("*" can be any string) is created. This file will be deleted when the server instance that was created stops. |

Note 1)

This directory can be changed using the logger definition items.

Note 2)

This directory can be changed using the HTTP service definition items.

6.16 System Resource Settings

6.16.1 Java EE 6 Thread Number **Linux32/64**

Calculate the number of Java EE 6 threads using the estimation formula, adding the following system parameter value:

| Parameter | Description |
|-----------|--|
| nproc | Maximum number of processes (threads) that can be executed by one user |

Use the following estimation formula to calculate the number of Java EE 6 threads:

Number of threads used by the PCMI service + Number of threads per server instance x (Number of server instances + 1) **(Note)**

Note)

One must be added to the number of server instances for the Interstage Java EE 6 DAS service process.

To set system resource limits, edit the /etc/security/limits.conf file by changing the required parameter value. After performing this change, reboot the system for the change to take effect. For details on how to perform this change, refer to the operating system documentation.

Number of threads used by the PCMI service

Use the following estimation formula to calculate the number of threads used by the PCMI service:

8 x (Number of processes managed by the PCMI service) + 18

Use the following estimation formula to calculate the number of processes managed by the PCMI service:

(Number of server instances) + 1 **(Note)**

Note)

One must be added to the number of server instances for the Interstage Java EE 6 DAS service process.

Number of threads per server instance

Use the following estimation formula to calculate the number of threads per server instance:

```
3 x (Maximum pool size of the HTTP listener and HTTPS listener thread pool (Note))
+ 2 x Acceptor threads
+ Number of deployed web applications
+ Maximum pool size of the EJB container default thread pool (Note)
+ Total Maximum pool size of the thread pools created per Enterprise Bean (Note)
+ Total Asynchronous Process Thread Maximum Pool Size of the Session Bean
+ Total number of Maximum pool size of the JDBC connection pool used in the server instance
+ Total number of Maximum pool size of the connector connection pool used in the server instance
+ 3 x (Total Maximum pool size of the JMS connection factory + Number of Message-driven Beans)
+ 2 x Number of processors
+ 250
```

Note)

For details on the values specified in $\{\text{thread-pool-name}\}$ of the thread pool definition item name, refer to "[*Thread pool](#)" in "[7.7.15 Thread Pool Definition Items](#)".

Chapter 7 List of Definition Items

The Java EE 6 runtime environment definition items are explained here.

Definition Items

Definition items are categorized in a hierarchy as shown below. Category and property names are delimited using a period.

```
server.category1.category3.property1
server.category1.category4.property2
server.category2.category5.property3
server.category2.category6.property4
server.category2.category7.property5
server.category2.category8.property6
server.category2.category8.category9.property7
server.category2.category8.category9.property8
```

Setting/Referencing Definition Items

Referencing and updating defined values is performed from the command line using the `_set/get/list` subcommand.

These subcommands have the following features:

- By using the `set` subcommand, you can set definition item values.
- Definition item values 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 wildcard (*). Note, however, that unsupported definitions may sometimes be displayed when using the wildcard (*).

Note

- The property value is referable (`get` subcommand) or configurable (`set` subcommand) as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin get resources.jdbc-connection-pool.JNDI name.property.property name to be referenced
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set resources.jdbc-connection-pool.JNDI name.property.property name to be referenced
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin get resources.jdbc-connection-pool.JNDI name.property.property name to be referenced
/opt/FJSVisje6/glassfish/bin/asadmin set resources.jdbc-connection-pool.JNDI name.property.property name to be referenced
```

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.

- `set` subcommand
- `get` subcommand
- `list` subcommand

Restarting after a Definition was Changed

If the Interstage Java EE 6 DAS service, IJServer cluster operating environment, or resource definition items are changed, then the Interstage Java EE 6 DAS service or IJServer cluster may need to be restarted (to decide whether this will be necessary, refer to the definition item explanation). Note that those items for which restarting is unnecessary, because the definitions cannot be changed, are annotated with "-".

- If "Restart required" is "Yes"

This means that the Interstage Java EE 6 DAS service or 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. To change the definition of such an item in the Interstage Java EE 6 DAS service, the service does not have to be stopped before the definition is changed, but must be restarted after the change.

- If "Restart required" is "No"

This means that the Interstage Java EE 6 DAS service or 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 Interstage Java EE 6 DAS service or IJServer cluster is running, the new value will take effect immediately. The service or 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.

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. For details on system properties, refer to "[7.7.1 Properties Used when Creating and Updating Definitions](#)".

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
-

About the Definition Item Descriptions

Definition items are described in the following format:

Definition Item

For categories, an asterisk "*" is placed at the beginning of the line, as in: "*Resource reference".

Definition Item Name

Categories and properties are annotated in the following format: "server. category1. category3. property1".

In the property descriptions, the following symbols are used:

| Symbol | Meaning |
|---|---|
| \${clusterName} | Specify the IJServer cluster name. |
| \${instanceName} | Specify the server instance name. |
| \${clusterName_instanceName} | Specify the IJServer cluster name or the server instance name. |
| \${clusterName_instanceName_configName} | Specify the IJServer cluster name, the server instance name or config name. |

Explanation

These are explanations of properties. There are no explanations for categories.

Range

For properties where the set subcommand can be used, the range of values that can be entered is provided.

Default Value

This is the value set during installation. This value is always used if you do not specifically set the definition item using an asadmin set subcommand. However, there may be a difference between the value set during installation and the value used by Java EE 6 if the value is omitted in the asadmin set subcommand (that is, if only the definition item name and "=" are specified). In such cases, the definition item is notated per the example below.



Example

Default Value

256

However, if the value is omitted in the asadmin set subcommand (that is, if only the definition item name and "=" are specified), the system operates as if 10 has been set.

7.1 PCMI Service Definition Items

Definition Items for the PCMI Profile

| Tag name | Definition item |
|----------------------------|--|
| Profile | - |
| ProcessAutoRestart | - |
| Restart | Process Automatic Restart |
| RetryCount | Process Automatic Retry Count |
| RetryCountResetTime | Process Automatic Retry Count Reset Time |
| MaximumStartupTime | Process Startup Wait Time |
| MaximumStopTime | Process Stop Wait Time |
| ApplicationProcessingTime | - |
| MaximumProcessingTime | Maximum Application Processing Time |
| TerminateProcessForTimeout | Maximum Application Processing Timeout Control |
| Monitor | - |
| MonitoringTime | Keep Alive Monitoring Time |

| Tag name | | Definition item |
|----------|-----------------------------|---|
| | TerminateProcessForTimeout | Keep Alive Monitoring Timeout Control |
| Log | | - |
| | Rotation | - |
| | Type | Rotation Type |
| | Size | Java VM Log Size |
| | Time | Java VM Log Collection Time |
| | BackupSize | Number of Generations |
| | CurrentDirectory | - |
| | NumberOfGenerations | Number of Generations of the Current Directory to Back up |
| | FJVM | - |
| | RestartProcessAtOutOfMemory | Control when there is Insufficient Java Heap/Permanent Generation Space |
| | EnvironmentVariables | - |
| | Variable | Environment Variables |

Definition Items for the PCMI Service Operation Definition File

| Tag name | Definition item |
|-----------------------------|---|
| maximumDaemonStartupTime | Startup Timeout |
| maximumDaemonStopTime | Stop Timeout |
| maximumProcessReStartupTime | Restart Timeout for Interstage Java EE 6 DAS Service or Server Instance |

Process Automatic Restart

Tag

Restart

Explanation

Specify whether to automatically restart (true) or not (false) if a monitored process ends abnormally.

Range

- true
- false

Default Value

true

Process Automatic Retry Count

Tag

RetryCount

Explanation

Specify the maximum number of process automatic retries. If "0" is specified, there is no limit. It is enabled if "true" is selected for [Process Automatic Restart](#).

Range

0-255 (count)

Default Value

0

Process Automatic Retry Count Reset Time

Tag

RetryCountResetTime

Explanation

Specify the time until the Process Automatic Retry Count will be reset (that is, time from the most recent abnormal end).

Range

0-65535(Seconds)

Default Value

600

Process Startup Wait Time

Tag

MaximumStartupTime

Explanation

Specify the wait time until the startup of monitored processes is complete. If processes are not to be interrupted until startup has completed, specify "0".

Range

0-65535(Seconds)

Default Value

600

Process Stop Wait Time

Tag

MaximumStopTime

Explanation

Specify the wait time until the shutdown of monitored processes is complete. If processes are not to be interrupted until shutdown has completed, specify "0".

Range

0-65535(Seconds)

Default Value

180

Maximum Application Processing Time

Tag

MaximumProcessingTime

Explanation

Specify the maximum application processing time.

Range

0-86400(Seconds)

Default Value

480

Maximum Application Processing Timeout Control

Tag

TerminateProcessForTimeout

Explanation

Select the control for when the process does not complete even if the application's maximum processing time has been exceeded:

- message: Warning message is output.
- stop: Process is stopped by force.

Range

- message
- stop

Default Value

message

Keep Alive Monitoring Time

Tag

MonitoringTime

Explanation

Specify the time for keep alive monitoring from the monitored processes to the PCMI service.

Range

0-65535(Seconds)

Default Value

30

Keep Alive Monitoring Timeout Control

Tag

TerminateProcessForTimeout

Explanation

Select the control for when there is no keep alive notification from the monitored process even if the keep alive monitoring time has been exceeded:

- message: Warning message is output.
- stop: Process is stopped by force.

Range

- message
- stop

Default Value

message

Rotation Type

Tag

Type

Explanation

Select the method for performing log file rotation:

- logsize: Log size
- time: Log collection time

Range

- logsize
- time

Default Value

logsize

Java VM Log Size

Tag

Size

Explanation

Specify the maximum Java VM log size. Java VM log files are rotated when the size that was specified is reached.

Range

1-512 (MB)

Default Value

1

Java VM Log Collection Time

Tag

Time

Explanation

Specify the time at which the rotation is executed. Java VM log files are rotated every day at the time that was specified.

Range

0-23(time)

Default Value

0

Number of Generations

Tag

BackupSize

Explanation

Specify the number of generations of Java VM log files to back up.

Range

1-100

Default Value

1

Number of Generations of the Current Directory to Back up

Tag

NumberOfGenerations

Explanation

Specify the number of generations of the current directory to back up. If "0" is specified, the current directory will not have generation management performed.

Note that if previous backup resources exist when "0" is specified, those backup resources will not be deleted automatically. Delete them as required.

Range

0-5

Default Value

1

Control when there is Insufficient Java Heap/Permanent Generation Space

Tag

RestartProcessAtOutOfMemory

Explanation

Select the action to take when the Java heap or the permanent generation space in the monitored process Java VM becomes insufficient:

- restart: This restarts the process.
- oome: This returns "java.lang.OutOfMemoryError" to the application.

Range

- restart
- oome

Default Value

restart

Environment Variables

Tag

Variable

Explanation

Specify the environment variables to be used when starting the monitored processes, in the format: "environment variable = value". In cases where multiple environment variables are specified, specify one tag for each environment variable, divided across multiple lines.

The specified environment variables are set by overwriting the environment variables of the following startup processes:

| Process start method | Environment variable |
|--|--|
| Interstage Java EE 6 DAS service (start with the start-domain subcommand) | Environment variables of the shell that executed the start-domain subcommand |
| Server instance (start with the start-cluster subcommand) | Environment variables of the shell that executed the start-domain subcommand |
| Server instance (start with the start-local-instance subcommand) | Environment variables of the shell that executed the start-local-instance subcommand |

If there are already settings for the environment variable PATH, environment variable LD_LIBRARY_PATH, and environment variable CLASSPATH, they are added after the settings values for each one.

Note that they are not valid for Interstage Java EE 6 DAS services, java.library.path and Classpath on the server instance Java VM.

Range

String

Default Value

None

Startup Timeout

Tag

maximumDaemonStartupTime

Explanation

Specify the time (in seconds) within which the PCMI service startup process should be complete. If the startup process does not complete within the specified time, it will be processed as a failure to start.

Range

60 to INTMAX-1

Default Value

1200

Stop Timeout

Tag

maximumDaemonStopTime

Explanation

Specify the time (in seconds) within which the PCMI service stop process should be complete. If the stop process does not complete within the specified time, the PCMI service processes will be stopped by force.

Range

30 to INTMAX-1

Default Value

180

Restart Timeout for Interstage Java EE 6 DAS Service or Server Instance

Tag

maximumProcessReStartupTime

Explanation

Specify the time (in seconds) within which the restart process for the Interstage Java EE 6 DAS service or server instance should be complete. If the startup process does not complete within the "this value + [Process Startup Wait Time](#)", it will be processed as a failure to start.

Range

30 to INTMAX-1

Default Value

60

7.2 Server Instance Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|-------------------------------------|---|---------------|-----|-----|------|------------------|
| *Resource reference | | | No | No | Yes | - |
| | Resource reference availability | enabled | Yes | Yes | No | No |
| | Resource name | ref | Yes | No | No | - |
| System property | | | | | | |
| | System property | Property name | Yes | No | Yes | - |

[*Resource reference](#)

Definition Item Name

`${instanceName}.resource-ref.${jndi-name}`

[Resource reference availability](#)

Definition Item Name

`${instanceName}.resource-ref.${jndi-name}.enabled`

Explanation

Specify whether to enable (true) or not enable (false) resource referencing.

Range

- true
- false

Default Value

true

Resource name

Definition Item Name

`${instanceName}.resource-ref.${jndi-name}.ref`

Explanation

The resource name is obtained.

Default Value

None

System property

Definition Item Name

`${instanceName}.system-property.${PropertyName}`

Explanation

Specify the system properties that become valid on the server instance.

For details on the system properties, refer to "[7.7.1 Properties Used when Creating and Updating Definitions](#)".

7.3 Cluster Definition Items

Definition Items

This item cannot be used for the Interstage Java EE 6 DAS service.

| Category | Property | Property name | get | set | list | Restart required |
|-------------------------------------|---|---------------|-----|-----|------|------------------|
| *Resource reference | | | No | No | Yes | - |
| | Resource reference availability | enabled | Yes | Yes | No | No |
| | Resource name | ref | Yes | No | No | - |

*Resource reference

Definition Item Name

`${clusterName}.resource-ref.${jndi-name}`

Explanation

The resource is associated with a specific target.

Resource reference availability

Definition Item Name

`${clusterName}.resource-ref.${jndi-name}.enabled`

Explanation

Specify whether to enable (true) or not enable (false) resource referencing.

Range

- true
- false

Default Value

true

Resource name

Definition Item Name

`${clusterName}.resource-ref.${jndi-name}.ref`

Explanation

This obtains the resource name.

Default Value

None

7.4 Application-related Definition Items

This section explains the application-related definition items.

Definition Items

| Category | get | set | list | Restart required |
|---------------------------|-----|-----|------|------------------|
| *Resource | No | No | Yes | - |

*Resource

Definition Item Name

`applications.application`

7.4.1 Java EE Application Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|--------------------------------------|-----------------------------|---------------|-----|-----|------|------------------|
| *Java EE application | | | No | No | Yes | - |
| | Name | name | Yes | No | No | - |
| | Location | location | Yes | No | No | No |
| | Library | libraries | Yes | Yes | No | No |
| | Status | enabled | Yes | Yes | No | No |
| | Explanation | description | Yes | Yes | No | No |

*Java EE application

Definition Item Name

`applications.application.${AppName}`

Name

Definition Item Name

`applications.application.${AppName}.name`

Explanation

This is the Java EE application name.

`Windows32/64`

DOS device names cannot be used.

Default Value

`${AppName}`

Location

Definition Item Name

`applications.application.${AppName}.location`

Explanation

This is the Java EE application storage destination.

Default Value

`{com.sun.aas.instanceRootURI}/applications/${AppName}/`

Library

Definition Item Name

`applications.application.${AppName}.libraries`

`${clusterName_instanceName}.applications.application.${AppName}.libraries`

Explanation

The Java EE application reference library is specified using the relative path or full path. To specify multiple libraries, delimit the library paths using ','.

Range

String



Note

The characters below cannot be specified; otherwise, it may not be possible to load classes correctly.

- Double-byte characters
- Space characters (spaces, tabs) at the end of the string

Default Value

None

Status

Definition Item Name

`${clusterName_instanceName}.application-ref.${AppName}.enabled`

Explanation

Specify whether to enable (true) or not enable (false) the Java EE application status.

Range

- true
- false

Default Value

true

Explanation

Definition Item Name

applications.application.\${AppName}.description

Explanation

This is the Java EE application explanation.

Range

String

Default Value

None

7.4.2 Web Application Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|-------------------------|---------------------|---------------|-----|-----|------|------------------|
| *Web application | | | No | No | Yes | - |
| | Name | name | Yes | No | No | - |
| | Context root | context-root | Yes | Yes | No | No |
| | Location | location | Yes | No | No | No |
| | Library | libraries | Yes | Yes | No | No |
| | Status | enabled | Yes | Yes | No | No |
| | Explanation | description | Yes | Yes | No | No |

*Web application

Definition Item Name

applications.application.\${AppName}

Name

Definition Item Name

applications.application.\${AppName}.name

Explanation

This is the web application name.

Windows32/64

DOS device names cannot be used.

Default Value

`${AppName}`

Context root

Definition Item Name

`applications.application.${AppName}.context-root`
`${clusterName_instanceName}.applications.application.${AppName}.context-root`

Explanation

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/...`).

Range

String

The context root must start with a slash (Example: `/hello`).

Additionally, the following characters cannot be specified:

- Double-byte 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 over 64 characters
- In Windows, DOS device names

Default Value

Value that has had the file extension removed from the file name of the application.

Location

Definition Item Name

`applications.application.${AppName}.location`
`${clusterName_instanceName}.applications.application.${AppName}.location`

Explanation

This is the server path to which the web application is deployed.

Default Value

`${com.sun.aas.instanceRootURI}/applications/${AppName}/`

Library

Definition Item Name

`applications.application.${AppName}.libraries`
`${clusterName_instanceName}.applications.application.${AppName}.libraries`

Explanation

The library (JAR) that will be referenced by the web application file is specified using the relative path or full path. To specify multiple libraries, delimit the library paths using ','.

Range

String

Note

The characters below cannot be specified; otherwise, it may not be possible to load classes correctly.

- Double-byte characters
- Space characters at the end of the character string (spaces, tabs)

Default Value

None

Status

Definition Item Name

`${clusterName_instanceName}.application-ref.${AppName}.enabled`

Explanation

Specify whether to enable (true) or not enable (false) the web application status.

Range

- true
- false

Default Value

true

Explanation

Definition Item Name

`applications.application.${AppName}.description`

Explanation

This is the web application explanation.

Range

String

Default Value

None

7.4.3 EJB Module Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|-------------|----------|---------------|-----|-----|------|------------------|
| *EJB Module | | | No | No | Yes | - |
| | Name | name | Yes | No | No | - |
| | Location | location | Yes | No | No | No |
| | Library | libraries | Yes | Yes | No | No |
| | Status | enabled | Yes | Yes | No | No |

| Category | Property | Property name | get | set | list | Restart required |
|----------|-------------|---------------|-----|-----|------|------------------|
| | Explanation | description | Yes | Yes | No | No |

*EJB Module

Definition Item Name

applications.application.\${AppName}

Name

Definition Item Name

applications.application.\${AppName}.name

Explanation

This is the EJB module name.

Windows32/64

DOS device names cannot be used.

Default Value

\${AppName}

Location

Definition Item Name

applications.application.\${AppName}.location

Explanation

The EJB module path in the application server is specified.

Default Value

\${com.sun.aas.instanceRootURI}/applications/\${AppName}/

Library

Definition Item Name

applications.application.\${AppName}.libraries

Explanation

The library (JAR) that will be referenced by the EJB module is specified using the relative path or full path. To specify multiple libraries, delimit the library paths using ','.

Range

String



Note

The characters below cannot be specified; otherwise, it may not be possible to load classes correctly.

- Double-byte characters
- Space characters at the end of the character string (spaces, tabs)

Default Value

None

Status

Definition Item Name

`${clusterName_instanceName}.application-ref.${AppName}.enabled`

Explanation

Specify whether to enable (true) or not enable (false) the EJB module status.

Range

- true
- false

Default Value

true

Explanation

Definition Item Name

`applications.application.${AppName}.description`

Explanation

An explanation for making identification of the EJB module easier is specified.

Range

String

Default Value

None

7.4.4 Application Client Module Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|-----------------------------------|-----------------------------|---------------|-----|-----|------|------------------|
| *Application client module | | | No | No | Yes | - |
| | Name | name | Yes | No | No | - |
| | Location | location | Yes | No | No | No |
| | Explanation | description | Yes | Yes | No | No |

*Application client module

Definition Item Name

`applications.application.${AppName}`

Name

Definition Item Name

applications.application.\${AppName}.name

Explanation

This is the application client module name.

Windows32/64

DOS device names cannot be used.

Default Value

\${AppName}

Location

Definition Item Name

applications.application.\${AppName}.location

Explanation

The path of the application client module in the application server is specified.

Default Value

\${com.sun.aas.instanceRootURI}/applications/\${AppName}/

Explanation

Definition Item Name

applications.application.\${AppName}.description

Explanation

An explanation for the application client module is specified.

Range

String

Default Value

None

7.4.5 Connector Module Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|--------------------------|--------------------|---------------|-----|-----|------|------------------|
| *Connector module | | | No | No | Yes | - |
| | Name | name | Yes | No | No | - |
| | Location | location | Yes | No | No | No |
| | Status | enabled | Yes | Yes | No | No |
| | Explanation | description | Yes | Yes | No | No |

*Connector module

Definition Item Name

applications.application.\${AppName}

Name

Definition Item Name

applications.application.\${AppName}.name

Explanation

The connector module name is specified.

Windows32/64

DOS device names cannot be used.

Default Value

.rar file name

Location

Definition Item Name

applications.application.\${AppName}.location

Explanation

The path of the connector module in the application server is specified.

Default Value

\${com.sun.aas.instanceRootURI}/applications/\${AppName}/

Status

Definition Item Name

\${clusterName_instanceName}.application-ref.\${AppName}.enabled

Explanation

Specify whether to enable (true) or not enable (false) the connector module status.

Range

- true

- false

Default Value

true

Explanation

Definition Item Name

applications.application.\${AppName}.description

Explanation

An explanation for the connector module is specified.

Range

String

Default Value

None

7.4.6 Lifecycle Module Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|--------------------------|----------------------------|---------------|-----|-----|------|------------------|
| *Lifecycle module | | | No | No | Yes | - |
| | Name | name | Yes | No | No | - |
| | Class name | class-name | Yes | Yes | No | Yes |
| | Class path | classpath | Yes | Yes | No | Yes |
| | Read-in | load-order | Yes | Yes | No | Yes |
| | Status | enabled | Yes | Yes | No | Yes |
| | Explanation | description | Yes | Yes | No | Yes |
| | Additional property | Property name | Yes | Yes | No | Yes |

*Lifecycle module

Definition Item Name

applications.application.\${AppName}

Name

Definition Item Name

applications.application.\${AppName}.name

Explanation

This is the lifecycle module definition name.

Default Value

\${AppName}

Class name

Definition Item Name

applications.application.\${AppName}.property.class-name

Explanation

The lifecycle module fully-qualified class name is specified.

Range

String

Default Value

None

Class path

Definition Item Name

applications.application.\${AppName}.property.classpath

Explanation

The lifecycle module class path is specified.

Range

String

Default Value

None

Read-in

Definition Item Name

applications.application.\${AppName}.property.load-order

Explanation

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.

Values of less than 100 may be used in the IIServer 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.

Range

100-system MAXINT value

Default Value

None

Status

Definition Item Name

\${clusterName_instanceName}.application-ref.\${AppName}.enabled

Explanation

Specify whether to enable (true) or not enable (false) the lifecycle module status.

Range

- true
- false

Default Value

true

Explanation

Definition Item Name

applications.application.\${AppName}.description

Explanation

An optional lifecycle module-related explanation is set.

Range

String

Default Value

None

Additional property

Definition Item Name

applications.application.\${AppName}.property.\${PropertyName}

Explanation

Any user property can be set. Properties set for "Additional property" can be obtained in the lifecycle module.

Range

- Property name:
 - Alphanumeric, or special characters ('-', '_', '.', '/', ':', '#')
 - Only alphanumerics or '_' can be specified as the start character
 - A string between 1 and 512 characters
- Property value:
 - A string between 1 and 512 characters

Default Value

None

7.5 Resource-related Definition Items

This section explains the resource-related definition items.

Definition Items

| Category | get | set | list | Restart required |
|---------------------------|-----|-----|------|------------------|
| *Resource | No | No | Yes | - |

*Resource

Definition Item Name

resources\${clusterName_instanceName}.resources

7.5.1 JDBC Connection Pool Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|----------------------------------|--|----------------------|-----|-----|------|------------------|
| *Connection pool | | | No | No | Yes | - |
| | Connection pool name | name | Yes | No | No | - |
| | Data source class name | datasource-classname | Yes | Yes | No | Yes |

| Category | Property | Property name | get | set | list | Restart required |
|-----------------------------------|--|---|-----|-----|------|------------------|
| | Resource type | res-type | Yes | Yes | No | Yes |
| | Explanation | description | Yes | Yes | No | Yes |
| | Additional property | property.\${PropertyName} | Yes | Yes | No | Yes |
| Number of Connections in the Pool | | | | | | |
| | Initial and Minimum pool size | steady-pool-size | Yes | Yes | No | Yes |
| | Maximum pool size | max-pool-size | Yes | Yes | No | No |
| | Change in pool size | pool-resize-quantity | Yes | Yes | No | No |
| | Idle Timeout | idle-timeout-in-seconds | Yes | Yes | No | Yes (Note 1) |
| | Maximum wait time | max-wait-time-in-millis | Yes | Yes | No | No |
| Connection Validation | | | | | | |
| | Connection Validation | is-connection-validation-required | Yes | Yes | No | No (Note 2) |
| | Validation Method | connection-validation-method | Yes | Yes | No | No (Note 2) |
| | Table name | validation-table-name | Yes | Yes | No | No (Note 2) |
| | On Any Failure | fail-all-connections | Yes | Yes | No | No |
| Transaction Management | | | | | | |
| | Non-transaction connection | non-transactional-connections | Yes | Yes | No | No |
| | Only connections after transaction start participate | allow-non-component-callers | Yes | Yes | No | No |
| | Transaction block | transaction-isolation-level | Yes | Yes | No | Yes |
| | Block level | is-isolation-level-guaranteed | Yes | Yes | No | Yes |
| Detail Attributes | | | | | | |
| | Statement timeout | statement-timeout-in-seconds | Yes | Yes | No | No (Note 2) |
| | Pooling (Note 3) | pooling | Yes | Yes | No | Yes |
| | Leak timeout | connection-leak-timeout-in-seconds | Yes | Yes | No | No |
| | Leak reclaim | connection-leak-reclaim | Yes | Yes | No | No |
| | Creation retry count | connection-creation-retry-attempts | Yes | Yes | No | No |
| | Retry interval | connection-creation-retry-interval-in-seconds | Yes | Yes | No | No |

Note 1)

The value set during the first access from the application will be used.

Note 2)

When using the JDBC connection pool with either the application client container or the Java SE standalone application, you must restart the Interstage Java EE 6 DAS service or IIServer cluster used as connection destinations during execution, after you change

the settings for these definition items. This is so that the JDBC connection pool created in the client process will use the Interstage Java EE 6 DAS service or IJServer cluster definition item values.

***Connection pool**

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}

Connection pool name

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.name

Explanation

This is the JDBC connection pool name.

Default Value

None

Data source class name

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.datasource-classname

Explanation

This is the data source implementation class.

Range

String

Default Value

None

Resource type

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.res-type

Explanation

Data source interface name. If the resource type is not specified, or 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.

Range

- `javax.sql.DataSource`
- `javax.sql.ConnectionPoolDataSource`
- `javax.sql.XADataSource`

Default Value

None

Explanation

Definition Item Name

`resources.jdbc-connection-pool.${pool-name}.description`

Explanation

This is the JDBC connection pool legend.

Range

String

Default Value

None

Additional property

Definition Item Name

`resources.jdbc-connection-pool.${pool-name}.property.${PropertyName}`

Explanation

Along with the JDBC drivers you will use, you can add required properties such as the database names (URL), user names, and passwords to the connection pool definitions. Check each JDBC driver manual for details, as the properties that can be specified differ with each JDBC driver.



.....
If the definition is changed during operations, all connections included in the pool will be deleted.
.....

Range

- Property name:
 - Alphanumerics, multibyte characters, or special characters ('-', '_', '.', '/', ':', '#')
 - The first character must be alphanumeric or multibyte.

- Property value:

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.

Default Value

None

Initial and Minimum pool size

Definition Item Name

`resources.jdbc-connection-pool.${pool-name}.steady-pool-size`

Explanation

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.

Set values lower than [Maximum pool size](#).

Range

0-2147483647(Number of pools)

Default Value

8

Maximum pool size

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.max-pool-size

Explanation

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.

Set a value higher than [Initial and Minimum pool size](#), and higher than [Change in pool size](#).

Range

1-2147483647(Number of pools)

Default Value

32

Change in pool size

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.pool-resize-quantity

Explanation

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 to the maximum pool size or decreased to the minimum pool size.

This value is the connection number that performs the scaling in a batch process.

Specify a value lower than [Maximum pool size](#).



Point

Setting a large value delays connection creation and re-use, but efficiency drops if a small value is set.

Range

1-2147483647(Number of pools)

Default Value

2

Idle Timeout

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.idle-timeout-in-seconds

Explanation

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.

Range

0-2147483647(Seconds)

Default Value

300

Maximum wait time

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.max-wait-time-in-millis

Explanation

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 milliseconds) until the connection for the application which requests the connection is timed out.
If 0 is specified, connection timeouts are not issued.

Range

0-2147483647(milliseconds)

Default Value

60000

Connection Validation

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.is-connection-validation-required

Explanation

Specify whether to enable (true) or not enable (false) connection validation.

Range

- true
- false

Default Value

true

Validation Method

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.connection-validation-method

Explanation

Method used to verify the connection.

- isValid

If the database is Symfoware, the application server issues the SQL statement "SELECT 1" to verify the connection.
If the database is not Symfoware, the application server calls the connection's "isValid()" method 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.

Range

- isValid
- table

Default Value

isValid

Table name

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.validation-table-name

Explanation

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.

```
SELECT COUNT(*) FROM <table name>
```

Range

String

Default Value

None

On Any Failure

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.fail-all-connections

Explanation

Specify whether to enable (true) or not enable (false).

- true
When an error is detected for one connection, the application server closes all connections maintained in the pool and reestablishes 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 validation 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.

Range

- true
- false

Default Value

false

Non-transaction connection

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.non-transactional-connections

Explanation

Specify whether to return (true) or not return (false) connections that are not being transaction managed.

Range

- true
- false

Default Value

false

Only connections after transaction start participate

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.allow-non-component-callers

Explanation

Specify whether to enable (true) or not enable (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).

Range

- true
- false

Default Value

false

Transaction block

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.transaction-isolation-level

Explanation

Transaction isolation level to use for connections generated in the pool.

For details on Transaction isolation level, refer to "[3.1.7 Creating Applications that Connect to the Database](#)".

Range

- read-uncommitted
- read-committed
- repeatable-read
- serializable

Default Value

Default block level set by the JDBC driver

Block level

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.is-isolation-level-guaranteed

Explanation

Determines whether connections returned to an application should be set to the isolation level specified for 'Transaction block'.

Range

- true
- false

Default Value

true

Statement timeout

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.statement-timeout-in-seconds

Explanation

Number of seconds before a request is terminated.

The application server executes the `setQueryTimeout()` method for the `Statement`, `PreparedStatement`, or `CallableStatement` object, and sets an execution timeout value.

If the application side also explicitly issues the `setQueryTimeout()` method, the configuration is performed in the following sequence:

1. The application server issues the `setQueryTimeout()` method after the time specified in the statement timeout value.
2. The `setQueryTimeout()` method from the application is issued.

For details on the `setQueryTimeout()` method, refer to the `java.sql.Statement` interface Javadoc and the JDBC driver manual.

If 0 or less is specified as this value, this attribute is shown as being disabled (the `setQueryTimeout()` method is not executed).

Range

-1-2147483647

Default Value

-1

Pooling (Note 3)

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.pooling

Explanation

Enable the Interstage pooling feature. To use the JDBC driver pooling feature, disable this setting and then disable the Interstage pooling feature.



.....
If the definition is changed during operations, all connections included in the pool will be deleted.
.....

Range

- true
- false

Default Value

true

Leak timeout

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.connection-leak-timeout-in-seconds

Explanation

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. If a connection leak occurs, the stack trace when the connection was opened will be recorded in the sever log.

If "0" is specified for this definition item, monitoring of connection leak occurrence is not performed.

If true was set for the [Leak reclaim](#), the physical connection will be destroyed automatically for connections in which leaks have occurred.

Range

0-2147483647

Default Value

0

Leak reclaim

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.connection-leak-reclaim

Explanation

If this setting is enabled, the physical connection will be destroyed automatically for connections in which leaks have occurred.

Range

- true
- false

Default Value

false

Creation retry count

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.connection-creation-retry-attempts

Explanation

Specify the retry count, for when the creation of a new connection fails.

If 0 is specified, there will be no retry.

Range

0-2147483647

Default Value

0

Retry interval

Definition Item Name

resources.jdbc-connection-pool.\${pool-name}.connection-creation-retry-interval-in-seconds

Explanation

Specify the retry interval (in seconds) for the creation of the connection. This value is enabled when the [Creation retry count](#) is greater than 0.

Range

1-2147483647

Default Value

10

Note 3)

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
- Change in pool size
- Idle timeout
- Maximum wait time
- On any failure
- Leak reclaim

Even if the Interstage pooling feature is disabled, the following JDBC connection pool definition items will operate.

- Maximum pool size
This prevents specific applications from obtaining large volumes of JDBC connections.

The Symfoware JDBC driver pooling feature is not supported. To use Symfoware, set this setting to true

7.5.2 JDBC Resource Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|----------------|----------------------|---------------|-----|-----|------|---------------------|
| *JDBC resource | | | No | No | Yes | - |
| | JNDI name | jndi-name | Yes | No | No | - |
| | Connection pool name | pool-name | Yes | Yes | No | No |
| | Status | enabled | Yes | Yes | No | No(Note 1) |
| | Explanation | description | Yes | Yes | No | No |

Note 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 IJServer cluster or Interstage Java EE 6 DAS service to which the application has been deployed must be restarted.

*JDBC resource

Definition Item Name

resources.jdbc-resource.\${jndi-name}

JNDI name

Definition Item Name

resources.jdbc-resource.\${jndi-name}.jndi-name

Explanation

JNDI name used to perform lookup of the data source.

Default Value

None

Connection pool name

Definition Item Name

resources.jdbc-resource.\${jndi-name}.pool-name

Explanation

Name of the associated JDBC connection pool.

Range

String

Default Value

None

Status

Definition Item Name

resources.jdbc-resource.\${jndi-name}.enabled

Explanation

Specifies whether to enable the JDBC resource.

Range

- true
- false

Default Value

true

Explanation

Definition Item Name

resources.jdbc-resource.\${jndi-name}.description

Explanation

JDBC resource legend.

Range

String

Default Value

None

7.5.3 JMS Connection Factory Definition Items

Definition Items

| Property | Property name | get | set | list | Restart required | |
|------------------------|-------------------------------|---------------------------|-----|------|------------------|-----|
| JNDI name | jndi-name | Yes | No | No | - | |
| Resource type | connection-definition-name | Yes | No | No | - | |
| Description | description | Yes | Yes | No | Yes | |
| Status | enabled | Yes | Yes | No | Yes | |
| Additional property | | | | | | |
| | UserName | property.UserName | Yes | Yes | No | Yes |
| | Password | property.Password | Yes | Yes | No | Yes |
| | ClientId | property.ClientId | Yes | Yes | No | Yes |
| | Optional property name | property.\${PropertyName} | Yes | Yes | No | Yes |
| Pool Settings | | | | | | |
| | Initial and Minimum pool size | steady-pool-size | Yes | Yes | No | No |
| | Maximum pool size | max-pool-size | Yes | Yes | No | No |
| | Change in pool size | pool-resize-quantity | Yes | Yes | No | No |
| | Idle Timeout | idle-timeout-in-seconds | Yes | Yes | No | Yes |
| | Maximum wait time | max-wait-time-in-millis | Yes | Yes | No | No |
| Transaction management | | | | | | |
| | Transaction support | transaction-support | Yes | Yes | No | Yes |

JNDI name

Definition Item Name

resources.connector-resource.\${jndi-name}.jndi-name

Explanation

JNDI name used to perform lookup of the JMS connection factory.

Default Value

None

Resource type

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.connection-definition-name

Explanation

JMS connection factory type.

When changing the JMS connection factory resource type, recreate the target JMS connection factory.

Range

- javax.jms.TopicConnectionFactory
- javax.jms.QueueConnectionFactory
- javax.jms.ConnectionFactory

Default Value

None

Description

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.description

and

resources.connector-resource.\${jndi-name}.description

Explanation

This is the JMS connection factory legend.



Note

You must specify the same value for the definition cited in the definition item name.

Range

String

Default Value

None

Status

Definition Item Name

resources.connector-resource.\${jndi-name}.enabled

Explanation

Determines whether to enable the JMS connection factory.

Range

- true
- false

Default Value

true

UserName

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.property.UserName

Explanation

User name used to connect to the message broker.

Note

.....
If the definition is changed during operations, all connections included in the pool will be deleted.
.....

Range

String

Default Value

guest

Password

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.property.Password

Explanation

Password used to connect to the message broker.

Note

.....
If the definition is changed during operations, all connections included in the pool will be deleted.
.....

Range

String

Default Value

guest

ClientId

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.property.ClientId

Explanation

Client ID of the JMS connection factory used by durable subscribers.

Note

.....
If the definition is changed during operations, all connections included in the pool will be deleted.
.....

Range

String

Default Value

None

Optional property name

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.property.\${PropertyName}

Explanation

Optional property name



.....
If the definition is changed during operations, all connections included in the pool will be deleted.
.....

Range

- Property name:
 - Alphanumerics (can be specified as the first character)
 - multibyte characters (can be specified as the first character)
 - special characters ('-', '_', ':', '/', ';', '#')
- Property value:
 - String

Default Value

None

Initial and Minimum pool size

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.steady-pool-size

Explanation

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.
Specify a value lower than [Maximum pool size](#).

Range

0-2147483647(Integer value)

Default Value

8

Maximum pool size

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.max-pool-size

Explanation

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. Specify a value higher than [Initial and Minimum pool size](#) and higher than [Change in pool size](#).

Range

1-2147483647(Integer value)

Default Value

32

Change in pool size

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.pool-resize-quantity

Explanation

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.

This value is the connection number that performs the scaling in a batch process.

Specify a value lower than [Maximum pool size](#).



Point

.....
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.
.....

Range

1-2147483647(Integer value)

Default Value

2

Idle Timeout

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.idle-timeout-in-seconds

Explanation

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.

Range

0-2147483647(Integer value)

Default Value

300

Maximum wait time

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.max-wait-time-in-millis

Explanation

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.

Range

0-2147483647(Integer value)

Default Value

60000

Transaction support

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.transaction-support

Explanation

Transaction level supported by the connection factory.

- XATransaction
- LocalTransaction
- NoTransaction

If this item has not been defined, XA transaction support is used.



If the definition is changed during operations, all connections included in the pool will be deleted.

Range

- XATransaction
- LocalTransaction
- NoTransaction

Default Value

None

7.5.4 JMS Send Destination Resource Definition Items

Definition Items

| Property | Property name | get | set | list | Restart required |
|-----------------------------------|---------------------------|-----|-----|------|------------------|
| JNDI name | jndi-name | Yes | No | No | - |
| Physical storage destination name | Name | Yes | Yes | No | Yes |
| Resource type | res-type | Yes | No | No | - |
| Status | enabled | Yes | Yes | No | Yes |
| Additional property | | | | | |
| Optional property name | property.\${PropertyName} | Yes | Yes | No | Yes |

JNDI name

Definition Item Name

resources.admin-object-resource.\${jndi-name}.jndi-name

Explanation

JNDI name used to perform lookup of the JMS send destination resources.

Default Value

None

Physical storage destination name

Definition Item Name

resources.admin-object-resource.\${jndi-name}.property.Name

Explanation

Physical storage destination name of the message broker referenced by the JMS send destination resource.

Range

- Half-width numerics
- Half-width alphanumerics (can be specified as the first character)
- "_" (can be specified as the first character)
- "\$" (can be specified as the first character)
- A string between 1 and 512 characters
- When javax.jms.Queue is specified as the resource type in the 'mq.sys.dmq' character string.

Default Value

None

Resource type

Definition Item Name

resources.admin-object-resource.\${jndi-name}.res-type

Explanation

JMS send destination resources type.

To change a prebuilt JMS send destination resource type, rebuild the target JMS send destination resource.

Range

- javax.jms.Topic
- javax.jms.Queue

Default Value

None

Status

Definition Item Name

resources.admin-object-resource.\${jndi-name}.enabled

Explanation

Determines whether to enable the JMS send destination resources.

Range

- true
- false

Default Value

true

Optional property name

Definition Item Name

resources.admin-object-resource.\${jndi-name}.property.\${PropertyName}

Explanation

This specifies the optional property name.

Range

- Property name:
 - Alphanumerics (can be specified as the first character)
 - multibyte characters (can be specified as the first character)
 - special characters ('-', '_', '.', '/', ':', '#')
- Property value:

String

Default Value

None

7.5.5 JavaMail Session Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|--------------------------|--|--------------------------|-----|-----|------|------------------|
| *JavaMail session | | | No | No | Yes | - |
| | JNDI name | jndi-name | Yes | No | No | - |
| | Store protocol | store-protocol | Yes | Yes | No | No |
| | Store protocol class | store-protocol-class | Yes | Yes | No | No |
| | Transfer protocol | transport-protocol | Yes | Yes | No | No |
| | Transfer protocol class | transport-protocol-class | Yes | Yes | No | No |
| | Mail host | host | Yes | Yes | No | No |
| | Default user | user | Yes | Yes | No | No |
| | Default address that is used for reply | from | Yes | Yes | No | No |
| | Debug | debug | Yes | Yes | No | No |
| | Description | description | Yes | Yes | No | No |

| Category | Property | Property name | get | set | list | Restart required |
|----------|-------------------------------------|---------------------------|-----|-----|------|------------------|
| | Additional property | property.\${PropertyName} | Yes | Yes | No | No |

*JavaMail session

Definition Item Name

resources.mail-resource.\${jndi-name}
 \${clusterName_instanceName}.resources.mail-resource.\${jndi-name}

JNDI name

Definition Item Name

resources.mail-resource.\${jndi-name}.jndi-name
 \${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.jndi-name

Explanation

The JNDI name is obtained.

Default Value

None

Store protocol

Definition Item Name

resources.mail-resource.\${jndi-name}.store-protocol
 \${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.store-protocol

Explanation

Define the store object communication method that will be used. Specify the following values

- imap: When IMAP is used
- pop3: When POP3 is used

Range

- imap
- pop3

Default Value

imap

Store protocol class

Definition Item Name

resources.mail-resource.\${jndi-name}.store-protocol-class
 \${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.store-protocol-class

Explanation

Specify the store communication method class that will implement the intended store protocol. Specify the following values:

- com.sun.mail.imap.IMAPStore: When IMAP is used
- com.sun.mail.pop3.POP3Store: When POP3 is used

Range

- com.sun.mail.imap.IMAPStore
- com.sun.mail.pop3.POP3Store

Default Value

com.sun.mail.imap.IMAPStore

Transfer protocol

Definition Item Name

resources.mail-resource.\${jndi-name}.transport-protocol
\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.transport-protocol

Explanation

Specify the transport communication method. Specify the following values:

- smtp: When SMTP is used

Range

- smtp

Default Value

smtp

Transfer protocol class

Definition Item Name

resources.mail-resource.\${jndi-name}.transport-protocol-class
\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.transport-protocol-class

Explanation

Specify the implementation class of the transport protocol.

- com.sun.mail.smtp.SMTPTransport: SMTP is used

Range

- com.sun.mail.smtp.SMTPTransport

Default Value

com.sun.mail.smtp.SMTPTransport

Mail host

Definition Item Name

resources.mail-resource.\${jndi-name}.host
\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.host

Explanation

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.

Range

String

Default Value

None

An error will occur when using the JavaMail session if you omitted the value with the `asadmin set` subcommand, and only specified the definition item name and "=", because specification of this definition item is mandatory.

Default user

Definition Item Name

`resources.mail-resource.${jndi-name}.user`
`${clusterName_instanceName}.resources.mail-resource.${jndi-name}.user`

Explanation

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.

Range

String

Default Value

None

An error will occur when using the JavaMail session if you omitted the value with the `asadmin set` subcommand, and only specified the definition item name and "=", because specification of this definition item is mandatory.

Default address that is used for reply

Definition Item Name

`resources.mail-resource.${jndi-name}.from`
`${clusterName_instanceName}.resources.mail-resource.${jndi-name}.from`

Explanation

This is the email address of the default user. Enter using the "username@host.domain" format.

Range

String

Default Value

None

An error will occur when using the JavaMail session if you omitted the value with the `asadmin set` subcommand (only specifying the definition item name and "=", because specification of this definition item is mandatory).

Debug

Definition Item Name

`resources.mail-resource.${jndi-name}.debug`
`${clusterName_instanceName}.resources.mail-resource.${jndi-name}.debug`

Explanation

Specify the output of the debug information.
The specified value is set in Session Property mail.debug.

Range

- true
- false

Default Value

false

Description

Definition Item Name

resources.mail-resource.\${jndi-name}.description
\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.description

Explanation

Enter a description of the component.

Range

String

Default Value

None

Additional property

Definition Item Name

resources.mail-resource.\${jndi-name}.property.\${PropertyName}
\${clusterName_instanceName}.resources.mail-resource.\${jndi-name}.property.\${PropertyName}

Explanation

Specify a Session Property key and its value. 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'.

Range

- Property name:
 - Alphanumerics, double-byte characters, or special characters ('-', '_', '.', '/', ';', '#')
 - The first character must be alphanumeric or double-byte.
- Property value:
 - String

Default Value

None

If the value is omitted with the asadmin set subcommand (specification of only the definition item name and "=") additional properties will be deleted.

7.5.6 Connector Connection Pool Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|----------------------------|----------|---------------|-----|-----|------|------------------|
| *Connector connection pool | | | No | No | Yes | - |

| Category | Property | Property name | get | set | list | Restart required |
|-----------------------------------|-------------------------------|-----------------------------------|-----|-----|------|------------------|
| | Connection pool name | name | Yes | No | No | - |
| | Resource adapter name | resource-adapter-name | Yes | Yes | No | Yes |
| | Connection definition name | connection-definition-name | Yes | Yes | No | Yes |
| | Description | description | Yes | Yes | No | Yes |
| | Additional property | property.\${PropertyName} | Yes | Yes | No | Yes |
| Number of connections in the pool | | | | | | |
| | Initial and Minimum pool size | steady-pool-size | Yes | Yes | No | No |
| | Maximum pool size | max-pool-size | Yes | Yes | No | No |
| | Change in pool size | pool-resize-quantity | Yes | Yes | No | No |
| | Idle timeout | idle-timeout-in-seconds | Yes | Yes | No | Yes (Note 1) |
| | Maximum wait time | max-wait-time-in-millis | Yes | Yes | No | No |
| Connection Validation | | | | | | |
| | Connection Validation | is-connection-validation-required | Yes | Yes | No | No (Note 2) |
| | On Any Failure | fail-all-connections | Yes | Yes | No | No |
| Transaction management | | | | | | |
| | Transaction support | transaction-support | Yes | Yes | No | Yes |
| | *Security map | | No | No | Yes | - |
| | Security map name | name | Yes | No | No | - |
| | Principal(Main) | principal | Yes | Yes | No | Yes |
| | User group | user-group | Yes | Yes | No | Yes |
| | *Backend principal | | No | No | Yes | - |
| | User name | user-name | Yes | Yes | No | Yes |
| | Password | password | Yes | Yes | No | Yes |

Note 1)

The value set during the first access from the application will be used.

Note 2)

When using the connector connection pool with either the application client container or the Java SE standalone application, you must restart the Interstage Java EE 6 DAS service or IJServer Cluster used as connection destinations when the client executes, after you change the connection validation settings. This is so that the connector connection pool created in the client process will use the Interstage Java EE 6 DAS service or IJServer Cluster definition item values.

***Connector connection pool**

Definition Item Name

resources.connector-connection-pool.\${jndi-name}

Connection pool name

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.name

Explanation

This is the connector connection pool name.

Default Value

None

Resource adapter name

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.resource-adapter-name

Explanation

This is the name of the associated resource adapter.

Range

String

Default Value

None

Connection definition name

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.connection-definition-name

Explanation

This is the connection factory interface name.

Range

String

Default Value

None

Description

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.description

Explanation

This is the Connector Connection Pool legend.

Range

String

Default Value

None

Additional property

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.property.\${PropertyName}

Range

- Property name:
 - Alphanumerics, double-byte characters, or special characters ('-', '_', '.', '/', ';', '#')
 - The first character must be alphanumeric or double-byte.
- Property value:
String

Default Value

None

Initial and Minimum pool size

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.steady-pool-size

Explanation

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.
Specify a value lower than the [Maximum pool size](#).

Range

0-2147483647

Default Value

8

Maximum pool size

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.max-pool-size

Explanation

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.
Specify a value higher than [Initial and Minimum pool size](#) and higher than [Change in pool size](#).

Range

1-2147483647

Default Value

32

Change in pool size

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.pool-resize-quantity

Explanation

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 to the maximum pool size or decreased to the minimum pool size.

Specify a value lower than [Maximum pool size](#).

Point

Setting a large value delays connection creation and re-use, but efficiency drops if a small value is set.

Range

1-2147483647

Default Value

2

Idle timeout

Definition Item Name

`resources.connector-connection-pool.${jndi-name}.idle-timeout-in-seconds`

Explanation

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.

Range

1-2147483647

Default Value

300

Maximum wait time

Definition Item Name

`resources.connector-connection-pool.${pool-name}.max-wait-time-in-millis`

Explanation

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.

Range

0-2147483647

Default Value

60000

Connection Validation

Definition Item Name

`resources.connector-connection-pool.${jndi-name}.is-connection-validation-required`

Explanation

Determines whether connection must be verified.

Range

- true
- false

Default Value

false

On Any Failure

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.fail-all-connections

Explanation

Determines whether a connection error should trigger verification of all connections maintained by the pool.

- true
When an error is detected for one connection, the application server closes all connections maintained in the pool and reestablishes only the number of connections specified by 'Initial and Minimum pool size'.
- 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.

Range

- true
- false

Default Value

false

Transaction support

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.transaction-support

Explanation

Transaction support level coded in ra.xml is overwritten by a level lower than the specified one.

- XATransaction
- LocalTransaction
- NoTransaction



If the definition is changed during operations, all connections included in the pool will be deleted.

Range

- XATransaction
- LocalTransaction
- NoTransaction

Default Value

None

***Security map**

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.security-map.\${MapName}

Security map name

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.security-map.\${MapName}.name

Explanation

Name used to reference a specific security map.

Default Value

None

Principal(Main)

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.security-map.\${MapName}.principal

Explanation

Application caller user name mapped to the appropriate backend principal.

Range

String

Default Value

None

User group

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.security-map.\${MapName}.user-group

Explanation

Application caller group name mapped to the appropriate backend principal.

Range

String

Default Value

None

***Backend principal**

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.security-map.\${MapName}.backend-principal

User name

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.security-map.\${MapName}.backend-principal.user-name

Explanation

Backend principal user name mapped to the appropriate EIS user name.

Range

String

Default Value

None

Password

Definition Item Name

resources.connector-connection-pool.\${jndi-name}.security-map.\${MapName}.backend-principal.password

Explanation

Backend principal password mapped to the appropriate EIS user password.

Range

String

Default Value

None

7.5.7 Connector Resource Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|---------------------|----------------------|---------------|-----|-----|------|------------------|
| *Connector resource | | | No | No | Yes | - |
| | JNDI name | jndi-name | Yes | No | No | - |
| | Connection pool name | pool-name | Yes | Yes | No | Yes |
| | Status | enabled | Yes | Yes | No | No |
| | Description | description | Yes | Yes | No | Yes |

*Connector resource

Definition Item Name

resources.connector-resource.\${jndi-name}

JNDI name

Definition Item Name

resources.connector-resource.\${jndi-name}.jndi-name

Explanation

JNDI name used to perform lookup of the connection factory.

Default Value

None

Connection pool name

Definition Item Name

resources.connector-resource.\${jndi-name}.pool-name

Explanation

Name of the associated Connector connection pool.

Range

String

Default Value

None

Status

Definition Item Name

resources.connector-resource.\${jndi-name}.enabled

Explanation

Specify whether to enable (true) or not enable (false) the connector resource.

Range

- true
- false

Default Value

true

Description

Definition Item Name

resources.connector-resource.\${jndi-name}.description

Explanation

This is the connector resource legend.

Range

String

Default Value

None

7.5.8 Managed Object Resource Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|---------------------------------|-----------------------|---------------------------|-----|-----|------|------------------|
| *Managed object resource | | | No | No | Yes | - |
| | JNDI name | jndi-name | Yes | No | No | - |
| | Resource type | res-type | Yes | Yes | No | Yes |
| | Resource adapter name | res-adapter | Yes | Yes | No | Yes |
| | Status | enabled | Yes | Yes | No | No |
| | Description | description | Yes | Yes | No | Yes |
| | Additional property | property.\${PropertyName} | Yes | Yes | No | Yes |

*Managed object resource

Definition Item Name

resources.admin-object-resource.\${jndi-name}

JNDI name

Definition Item Name

resources.admin-object-resource.\${jndi-name}.jndi-name

Explanation

JNDI name used to perform lookup of the managed object.

Default Value

None

Resource type

Definition Item Name

resources.admin-object-resource.\${jndi-name}.res-type

Explanation

Managed object interface name.

Range

String

Default Value

None

Resource adapter name

Definition Item Name

resources.admin-object-resource.\${jndi-name}.res-adapter

Explanation

Name of the associated resource adapter.

Range

String

Default Value

None

Status

Definition Item Name

resources.admin-object-resource.\${jndi-name}.enabled

Explanation

Specify whether to enable (true) or not enable (false) the managed object resource.

Range

- true
- false

Default Value

true

Description

Definition Item Name

resources.admin-object-resource.\${jndi-name}.description

Explanation

This is the managed object resource legend.

Range

String

Default Value

None

Additional property

Definition Item Name

resources.admin-object-resource.\${jndi-name}.property.\${PropertyName}

Range

- Property name:
 - Alphanumerics, double-byte characters, or special characters ('-', '_', '.', '/', ';', '#')
 - The first character must be alphanumeric or double-byte.

- Property value:

String

Default Value

None

7.5.9 Resource Adapter Definition Information Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|---|------------------------------|-----------------------|-----|-----|------|------------------|
| *Resource adapter definition information | | | No | No | Yes | - |
| | Thread pool ID | thread-pool-ids | Yes | Yes | No | Yes |
| | Resource adapter name | resource-adapter-name | Yes | No | No | - |

*Resource adapter definition information

Definition Item Name

resources.resource-adapter-config.\${jndi-name}

Thread pool ID

Definition Item Name

resources.resource-adapter-config.\${jndi-name}.thread-pool-ids

Explanation

Thread pool ID used for processing task requests from the resource adapter.

Range

String

Default Value

None

Resource adapter name

Definition Item Name

resources.resource-adapter-config.\${jndi-name}.resource-adapter-name

Explanation

Name of the associated resource adapter.

Default Value

None

7.5.10 Custom Resource Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|-------------------------|----------------------|---------------|-----|-----|------|------------------|
| *Custom resource | | | No | No | Yes | - |
| | JNDI name | jndi-name | Yes | No | No | - |
| | Resource type | res-type | Yes | Yes | No | No |
| | Factory class | factory-class | Yes | Yes | No | No |
| | Status | enabled | Yes | Yes | No | No |
| | Explanation | description | Yes | Yes | No | No |

| Category | Property | Property name | get | set | list | Restart required |
|----------|---------------------|---------------------------|-----|-----|------|------------------|
| | Additional property | property.\${PropertyName} | Yes | Yes | No | Yes |

*Custom resource

Definition Item Name

resources.custom-resource.\${jndi-name}
 \${clusterName_instanceName}.resources.custom-resource.\${jndi-name}

JNDI name

Definition Item Name

resources.custom-resource.\${jndi-name}.jndi-name

Explanation

Unique name in the JNDI namespace.

Default Value

None

Resource type

Definition Item Name

resources.custom-resource.\${jndi-name}.res-type
 \${clusterName_instanceName}.resources.custom-resource.\${jndi-name}.res-type

Explanation

Object type, using the fully qualified format

Range

String

Default Value

None

Factory class

Definition Item Name

resources.custom-resource.\${jndi-name}.factory-class

Explanation

Resource factory class, using the fully qualified format.
 javax.naming.spi.ObjectFactory must be implemented.

Range

String

Default Value

None

Status

Definition Item Name

resources.custom-resource.\${jndi-name}.enabled

Explanation

Specifies whether to enable the custom resource.

Range

- true
- false

Default Value

true

Explanation

Definition Item Name

resources.custom-resource.\${jndi-name}.description

Explanation

Custom resource legend.

Range

String

Default Value

None

Additional property

Definition Item Name

resources.custom-resource.\${jndi-name}.property.\${PropertyName}

Explanation

Specifies a unique property which can be used in the Factory Class.

Range

String

Default Value

None

7.5.11 External Resource Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|--------------------|---------------|------------------|-----|-----|------|------------------|
| *External resource | | | No | No | Yes | - |
| | JNDI name | jndi-name | Yes | No | No | - |
| | JNDI search | jndi-lookup-name | Yes | Yes | No | No |
| | Resource type | res-type | Yes | Yes | No | No |

| Category | Property | Property name | get | set | list | Restart required |
|----------|-------------------------------------|---------------------------|-----|-----|------|------------------|
| | Factory class | factory-class | Yes | Yes | No | No |
| | Status | enabled | Yes | Yes | No | No |
| | Explanation | description | Yes | Yes | No | No |
| | Additional property | property.\${PropertyName} | Yes | Yes | No | Yes |

*External resource

Definition Item Name

resources.external-jndi-resource.\${jndi-name}

JNDI name

Definition Item Name

resources.external-jndi-resource.\${jndi-name}.jndi-name

Explanation

Name unique in the JNDI namespace.

Default Value

None

JNDI search

Definition Item Name

resources.external-jndi-resource.\${jndi-name}.jndi-lookup-name

Explanation

JNDI name used for external repository search.

Range

String

Default Value

None

Resource type

Definition Item Name

resources.external-jndi-resource.\${jndi-name}.res-type

Explanation

Object type, using the fully qualified format.

Range

String

Default Value

None

Factory class

Definition Item Name

`resources.external-jndi-resource.${jndi-name}.factory-class`

Explanation

Resource factory class, using the fully qualified format `javax.naming.spi.InitialContextFactory` must be implemented.

Range

String

Default Value

None

Status

Definition Item Name

`resources.external-jndi-resource.${jndi-name}.enabled`
`${clusterName_instanceName}.resources.external-jndi-resource.${jndi-name}.enabled`

Explanation

Specifies whether to enable the external resource.

Range

- true
- false

Default Value

true

Explanation

Definition Item Name

`resources.external-jndi-resource.${jndi-name}.description`

Explanation

External resource legend.

Range

String

Default Value

None

Additional property

Definition Item Name

`resources.external-jndi-resource.${jndi-name}.property.${PropertyName}`

Explanation

Specifies a unique property which can be used in the Factory Class.

Range

String

Default Value

None

7.6 Message Broker Option Properties

The Interstage JMS message broker option properties are explained.

Specify the following properties with the -D option of the imqbrokerd command during message broker startup.

Windows32/64

You can also specify them with the imqsvcadmin install subcommand during registration of the message broker services.

- [Connection Service Properties](#)
- [Routing Service Properties](#)
- [Physical Storage Destination Automatic Generation Properties](#)
- [Persistence Service Properties](#)
- [Security Properties](#)
- [Log Function Properties](#)

Specify the following properties with the imqcmd command after starting the message broker.

- [Physical Storage Destination Generation or Update Properties](#)

7.6.1 Connection Service Properties

| Property | get | set | list | imqbrokerd | imqsvcadmin |
|--|-----|-----|------|------------|--------------------------------|
| | | | | | Windows32/64 install |
| imq.<serviceName>.max_threads (Note 1) | No | No | No | Yes | Yes |
| imq.<serviceName>.min_threads (Note 1) | No | No | No | Yes | Yes |
| imq.<serviceName>.tcp.port (Note 1) | No | No | No | Yes | Yes |

Note 1)

The following values that indicate the connection service in serviceName can be specified:

- admin
- jms

imq.<serviceName>.max_threads

Explanation

Set max_threads to a value greater than min_threads value.

This must be set after performing an estimate using the following formula:

- 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.

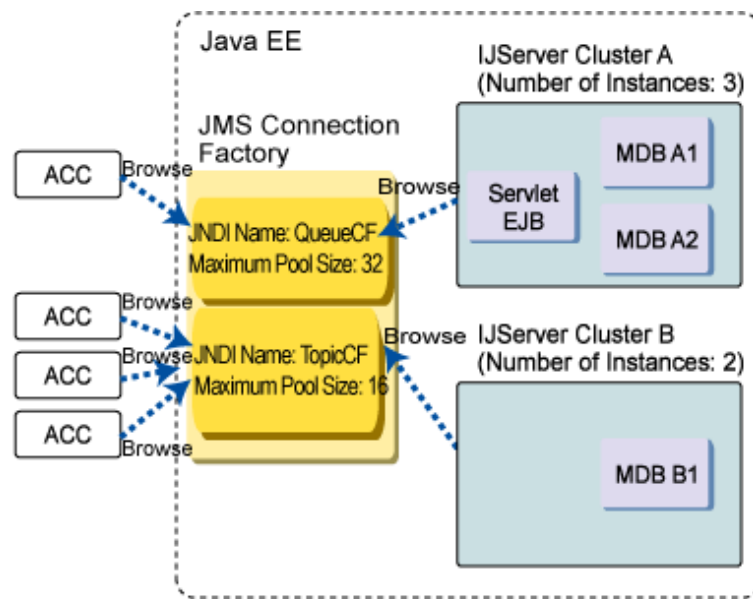
(2) Number of Message-driven Bean applications deployed to the IJServer cluster * Number of server instances
 When there are multiple IJServer clusters, this will be the total number for each IJServer cluster separately.

(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) | [JMS Connection Factory QueueCF] Maximum pool size: 32 [JMS Connection Factory QueueCF] Number of application client containers that reference JMS connection factory QueueCF: 1 [JMS Connection Factory TopicCF] Maximum pool size: 16 [JMS Connection Factory TopicCF] Number of application client containers that reference JMS connection factory TopicCF: 3 Accordingly, $(1 * 32) + (3 * 16) = 80$ |
| (5) | [JMS Connection Factory QueueCF] Number of application client containers that reference JMS connection factory QueueCF: 1 [JMS Connection Factory TopicCF] Number of application client containers that reference JMS connection factory TopicCF: 3 Accordingly, $1 + 3 = 4$ |

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

Specification Method

If this is set using `imqcmd`, specify as follows:

```
-o maxThreads=Value that is set
```

Range

2-2147483647(Integer value)

Default Value

- If `serviceName` is `jms`:

1000

- If `serviceName` is `admin`:

10

imq.<serviceName>.min_threads

Explanation

The minimum number of threads retained in the connection service thread pool that was specified is specified. Specify a value lower than the value to be specified in [max_threads](#).

Range

0-2147483647(Integer value)

Default Value

- If `serviceName` is `jms`:

10

- If `serviceName` is `admin`:

4

imq.<serviceName>.tcp.port

Explanation

The port number of the connection service that was specified is specified.
Set a different number for the ports used for the admin and jms services.
If "0" is specified, then ports that are able to be used at message broker startup will be used.

Range

0-65535(Integer value)

Default Value

0

7.6.2 Routing Service Properties

| Property | get | set | list | imqbrokerd | imqsvcadm Windows32/64 |
|-------------------------------------|-----|-----|------|------------|---------------------------|
| | | | | | install |
| imq.destination.DMQ.truncateBody | No | No | No | Yes | Yes |
| imq.message.expiration.interval | No | No | No | Yes | Yes |
| imq.message.max_size | No | No | No | Yes | Yes |
| imq.system.max_count | No | No | No | Yes | Yes |
| imq.system.max_size | No | No | No | Yes | Yes |
| imq.transaction.producer.maxNumMsgs | No | No | No | Yes | Yes |
| imq.transaction.consumer.maxNumMsgs | No | No | No | Yes | Yes |

imq.destination.DMQ.truncateBody

Explanation

Whether to delete the message body before it is saved in the dead message queue is specified.
If "true" is specified, then the body of the message will be deleted, and only the header and the properties will be saved.

Range

- true
- false

Default Value

false

imq.message.expiration.interval

Explanation

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, the message broker process load may increase and performance may deteriorate.

Range

1-2147483647(Integer value)

Default Value

60

imq.message.max_size

Explanation

The maximum size of a single message (Unit: Bytes, kilobytes, or megabytes) is specified.
If "-1" is specified, the maximum size of a single message is unlimited.

Specification Method

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

Range

-1, 1-2147483647(Integer value)

Default Value

70m

imq.system.max_count

Explanation

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.

Range

-1, 1-2147483647(Integer value)

Default Value

-1

imq.system.max_size

Explanation

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.

Specification Method

Refer to "[Specification Method](#)" for details on how to specify units.

Range

-1, 1-2147483647(Integer value)

Default Value

-1

imq.transaction.producer.maxNumMsgs

Explanation

The maximum number of messages that the producer can process in a single transaction.

Range

1-2147483647(Integer value)

Default Value

1000

imq.transaction.consumer.maxNumMsgs

Explanation

The maximum number of messages that the consumer can process in a single transaction.

Range

1-2147483647(Integer value)

Default Value

100

7.6.3 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 | get | set | list | imqbrokerd | imqsvcadmind |
|---|-----|-----|------|------------|-------------------------|
| | | | | | Windows32/64 install |
| imq.autocreate.destination.maxBytesPerMsg | No | No | No | Yes | Yes |
| imq.autocreate.destination.maxTotalMsgBytes | No | No | No | Yes | Yes |
| imq.autocreate.destination.limitBehavior | No | No | No | Yes | Yes |
| imq.autocreate.destination.maxNumMsgs | No | No | No | Yes | Yes |
| imq.autocreate.destination.maxNumProducers | No | No | No | Yes | Yes |
| imq.autocreate.destination.useDMQ | No | No | No | Yes | Yes |
| imq.autocreate.queue | No | No | No | Yes | Yes |
| imq.autocreate.queue.consumerFlowLimit | No | No | No | Yes | Yes |
| imq.autocreate.queue.maxNumActiveConsumers | No | No | No | Yes | Yes |
| imq.autocreate.queue.maxNumBackupConsumers | No | No | No | Yes | Yes |
| imq.autocreate.topic | No | No | No | Yes | Yes |
| imq.autocreate.topic.consumerFlowLimit | No | No | No | Yes | Yes |

imq.autocreate.destination.maxBytesPerMsg

Explanation

The maximum size of a single message that is allowed in the physical storage destination (Unit: Bytes, kilobytes, or megabytes) is specified. This property is only enabled when the [imq.autocreate.destination.limitBehavior](#) property is set in "REJECT_NEWEST".

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).

If "-1" is specified, the maximum size of a single message that is allowed is unlimited.

Specification Method

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

Range

-1, 1-2147483647(Integer value)

Default Value

10m

imq.autocreate.destination.maxTotalMsgBytes

Explanation

The total maximum size of messages that is allowed in the physical storage destination (Unit: Bytes, kilobytes, or megabytes) is specified.

If "-1" is specified, the total maximum size of messages that is allowed is unlimited.

Specification Method

Refer to "[Specification Method](#)" for details on how to specify units.

Range

-1, 1-2147483647(Integer value)

Default Value

10240m

imq.autocreate.destination.limitBehavior

Explanation

This specifies the way in which the message broker will respond when the values below reach their limits.

- maxTotalMsgBytes
- maxBytesPerMsg
- maxNumMsgs

One of the following is selected.

- FLOW_CONTROL
Producers using the `jms` connection service put the message accumulation process on standby until messages can be stored in a physical storage destination. Processing is not returned to the producer until the standby status is removed. This setting is disabled for producers using the `jmsdirect` connection service.
- REMOVE_OLDEST
The oldest message is destroyed. This is not notified to the producer.
- REMOVE_LOW_PRIORITY
Messages with the lowest priority 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.

Range

- FLOW_CONTROL
- REMOVE_OLDEST
- REMOVE_LOW_PRIORITY
- REJECT_NEWEST

Default Value

REJECT_NEWEST

imq.autocreate.destination.maxNumMsgs

Explanation

This specifies the maximum number of saved messages allowed in the physical storage destination. If "-1" is specified, there will be no limit to the number of saved messages allowed.

Range

-1, 1-2147483647(Integer value)

Default Value

100000

imq.autocreate.destination.maxNumProducers

Explanation

The maximum number of producers that can connect to the physical storage destination is specified. If "-1" is specified, the maximum number of producers that can connect is unlimited.

Range

-1, 1-2147483647(Integer value)

Default Value

100

imq.autocreate.destination.useDMQ

Explanation

When a message is destroyed because the physical storage destination is limited, whether to save dead messages in the queue (true) or destroy the messages (false) is specified.

This property is only enabled when the `imq.autocreate.destination.limitBehavior` property is set in "REMOVE_OLDEST" or "REMOVE_LOW_PRIORITY".

Range

- true
- false

Default Value

true

imq.autocreate.queue

Explanation

Specify whether to allow (true) or not allow (false) the automatic generation of the physical storage destination for which the physical storage destination type is "Queue".

Range

- true
- false

Default Value

true

imq.autocreate.queue.consumerFlowLimit

Explanation

This setting is only enabled for physical storage destinations for which the physical storage destination type is "Queue".

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.

Range

-1, 1-2147483647(Integer value)

Default Value

1000

imq.autocreate.queue.maxNumActiveConsumers

Explanation

This setting is only enabled for physical storage destinations for which the physical storage destination type is "Queue".

The maximum number of consumers that can receive messages from the physical storage destination is specified.

If "-1" is specified, the maximum number of consumers that can receive messages from the physical storage destination is unlimited.

Range

-1, 1-2147483647(Integer value)

Default Value

-1

imq.autocreate.queue.maxNumBackupConsumers

Explanation

This setting is only enabled for physical storage destinations for which the physical storage destination type is "Queue".

The maximum number of consumers that can queue to receive messages from the physical storage destination is specified.

If "-1" is specified, the maximum number of consumers that can queue to receive messages from the physical storage destination is unlimited.

Range

-1-2147483647(Integer value)

Default Value

0

imq.autocreate.topic

Explanation

Specify whether to allow (true) or not allow (false) the automatic creation of the physical storage destination for which the physical storage destination type is "Topic".

Range

- true
- false

Default Value

true

imq.autocreate.topic.consumerFlowLimit

Explanation

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.

Range

-1, 1-2147483647(Integer value)

Default Value

1000

7.6.4 Persistence Service Properties

| Property | get | set | list | imqbrokerd | imqsvcadmin |
|-------------------------------|-----|-----|------|------------|--------------|
| | | | | | Windows32/64 |
| | | | | | install |
| imq.persist.file.sync.enabled | No | No | No | Yes | Yes |

imq.persist.file.sync.enabled

Explanation

Whether to make (true) or not make (false) the memory status synchronous with the persistence information file is specified.

Range

- true

- false

Default Value

false

7.6.5 Security Properties

| Property | get | set | list | imqbrokerd | imqsvcadmin |
|---------------------------|-----|-----|------|------------|--------------|
| | | | | | Windows32/64 |
| | | | | | install |
| imq.accesscontrol.enabled | No | No | No | Yes | Yes |

imq.accesscontrol.enabled

Explanation

Whether to use access control for the connection service is specified.

Range

- true
- false

Default Value

true

7.6.6 Log Function Properties

| Property | get | set | list | imqbrokerd | imqsvcadmin |
|-----------------------------|-----|-----|------|------------|--------------|
| | | | | | Windows32/64 |
| | | | | | install |
| imq.destination.logDeadMsgs | No | No | No | Yes | Yes |
| imq.log.file.rolloverbytes | No | No | No | Yes | Yes |
| imq.log.file.rolloversecs | No | No | No | Yes | Yes |

imq.destination.logDeadMsgs

Explanation

Whether to write dead message information to a log is specified.

If true is specified, the following events are written to a log.

- The message broker has saved messages to the dead message queue.
- The message broker has destroyed the message because the number of messages that can be held in the dead message queue has been exceeded.
- The message broker has destroyed the dead message because the physical storage destination is set to not use the dead message queue.

Range

- true
- false

Default Value

false

imq.log.file.rolloverbytes

Explanation

The log size (Unit: Bytes) at which the log file rotates is specified.

If "-1" is specified, it indicates that rotation based on the log size is not performed.

Range

-1, 1-9223372036854775807(Integer value)

Default Value

268435456 (256MB)

imq.log.file.rolloversecs

Explanation

The validity period (Unit: Seconds) of the log file before it rotates is specified.

The log file rotates when the validity period is exceeded during log output. However, when the log is not output, the log file does not rotate even if the validity period is exceeded.

If "-1" is specified, it indicates that rotation based on the validity period is not performed.

Range

-1, 1-9223372036854775807(Integer value)

Default Value

604800 (1 week)

7.6.7 Physical Storage Destination Generation or Update Properties

These properties are reflected as the values of the physical storage destination settings when physical storage destinations are created or when physical storage destinations are updated.

When automatically creating physical storage destinations, specify the properties listed in [7.6.3 Physical Storage Destination Automatic Generation Properties](#).

| Property | get | set | list | imqcmd | |
|---------------------------------------|-----|-----|------|------------|------------|
| | | | | create dst | update dst |
| consumerFlowLimit | No | No | No | Yes | Yes |
| maxBytesPerMsg | No | No | No | Yes | Yes |
| maxTotalMsgBytes | No | No | No | Yes | Yes |
| limitBehavior | No | No | No | Yes | Yes |
| maxNumActiveConsumers | No | No | No | Yes | Yes |
| maxNumBackupConsumers | No | No | No | Yes | Yes |
| maxNumMsgs | No | No | No | Yes | Yes |
| maxNumProducers | No | No | No | Yes | Yes |
| useDMQ | No | No | No | Yes | Yes |

consumerFlowLimit

Explanation

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.

If "-1" is specified, the number of messages that can be delivered to the 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.

Range

-1-2147483647(Integer value)

Default Value

1000

maxBytesPerMsg

Explanation

The maximum size of a single message that is allowed in the physical storage destination (Unit: Bytes, kilobytes, or megabytes) is specified. This property is only enabled when the [limitBehavior](#) property is set in "REJECT_NEWEST".

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).

If "-1" is specified, the maximum size of a single message that is allowed is unlimited.

Specification Method

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

Range

-1-2147483647(Integer value)

Default Value

-1

maxTotalMsgBytes

Explanation

The total maximum size of messages that is allowed in the physical storage destination (Unit: Bytes, kilobytes, or megabytes) is specified.

If "-1" is specified, the total maximum size of messages that is allowed is unlimited.

Specification Method

Refer to "[Specification Method](#)" for details on how to specify units.

Range

-1-2147483647(Integer value)

Default Value

-1

limitBehavior

Explanation

The response method of the message broker when the maxTotalMsgBytes or maxBytesPerMsg or maxNumMsgs limit was reached is specified.

One of the following is selected.

- FLOW_CONTROL
Producers using the jms connection service put the message accumulation process on standby until messages can be stored in a physical storage destination. Processing is not returned to the producer until the standby status is removed.
This setting is disabled for producers using the jmsdirect connection service.
- REMOVE_OLDEST
The oldest message is destroyed. This is not notified to the producer.
- REMOVE_LOW_PRIORITY
Messages with the lowest priority 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.

Range

- FLOW_CONTROL
- REMOVE_OLDEST
- REMOVE_LOW_PRIORITY
- REJECT_NEWEST

Default Value

REJECT_NEWEST

maxNumActiveConsumers

Explanation

This setting is only enabled for physical storage destinations for which the physical storage destination type is "Queue".

The maximum number of consumers that can receive messages from the physical storage destination is specified.

If "-1" is specified, the maximum number of consumers that can receive messages from the physical storage destination is unlimited.

Range

-1, 1-2147483647(Integer value)

Default Value

-1

maxNumBackupConsumers

Explanation

This setting is only enabled for physical storage destinations for which the physical storage destination type is "Queue".

The maximum number of consumers that can queue to receive messages from the physical storage destination is specified.

If "-1" is specified, the maximum number of consumers that can queue to receive messages from the physical storage destination is unlimited.

Range

-1-2147483647(Integer value)

Default Value

0

maxNumMsgs

Explanation

The maximum number of accumulated messages that are allowed in the physical storage destination is specified. If "-1" is specified, the maximum number of accumulated messages that are allowed is unlimited.

Range

-1-2147483647(Integer value)

Default Value

-1

maxNumProducers

Explanation

The maximum number of producers that can connect to the physical storage destination is specified. If "-1" is specified, the maximum number of producers that can connect is unlimited.

Range

-1, 1-2147483647(Integer value)

Default Value

100

useDMQ

Explanation

When a message is destroyed because the physical storage destination is limited, whether to save dead messages in the queue (true) or destroy the messages (false) is specified. This property is only enabled when the [limitBehavior](#) property is set in "REMOVE_OLDEST" or "REMOVE_LOW_PRIORITY".

Range

- true
- false

Default Value

true

7.7 Operating Environment-related Definition Items

This section explains the operating environment-related definition items.

7.7.1 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 6 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 6 runtime environment. The default value is as follows: Windows32/64 C:\Interstage\F3FMisje6\glassfish Solaris32/64 Linux32/64 /opt/FJSVisje6/glassfish |
| com.sun.aas.javaRoot | JDK/JRE installation directory. The default value is as follows: Windows32/64 C:\Interstage\JDK7 Solaris32/64 Linux32/64 /opt/FJSVawjbc/jdk7 |
| com.sun.aas.instanceRoot | Server instance root directory. The default value is as follows: Server Instance Windows32/64 [Java EE 6 common directory]\nodes\localhost-domain1\[server instance name] Solaris32/64 Linux32/64 [Java EE 6 common directory]/nodes/localhost-domain1/[server instance name] Interstage Java EE 6 DAS Service Windows32/64 [Java EE 6 common directory]\domains\domain1 Solaris32/64 Linux32/64 [Java EE 6 common directory]/domains/domain1 |
| com.sun.aas.instanceRootURI | This is the format for the root directory URI of the server instance. The default value is as follows: Server Instance name [URI format of the Java EE 6 common directory]/nodes/localhost-domain1/[server instance name] Interstage Java EE 6 DAS Service [URI format of the Java EE 6 common directory]/domains/domain1 |
| com.sun.aas.derbyRoot | Java DB root directory. The default value is as follows: Windows32/64 C:\Interstage\F3FMisje6\javadb Solaris32/64 Linux32/64 /opt/FJSVisje6/javadb |
| com.sun.aas.hostName | Host name of the machine that the Java EE 6 runtime environment is run on. |
| file.separator | This is the file path delimiter. |

| Property name | Description |
|----------------|---|
| | <p>Windows32/64 "\"</p> <p>Solaris32/64 Linux32/64 "/"</p> |
| path.separator | <p>This is the environment variable delimiter.</p> <p>Windows32/64 ";"</p> <p>Solaris32/64 Linux32/64 ":"</p> |



Example

Use as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set resources.jdbc-connection-pool.__TimerPool.property.databaseName=${com.sun.aas.instanceRoot}/lib/databases/ejbtimer
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin set resources.jdbc-connection-pool.__TimerPool.property.databaseName=\\{com.sun.aas.instanceRoot}/lib/databases/ejbtimer
```

System property

System properties can be defined for each of the following:

- 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 |
|------------------|---|---|
| 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 6 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: 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 definition value of the settings system property (default value of the table below) will be enabled by the server instance.

| Property name | Default value | Range (Note) | Description |
|---------------------------|---------------|--------------|---|
| ASADMIN_LISTENER_PORT | 24858 | 1-65535 | Port number for the operation management HTTP Listener. This is used as the port number where the server instance receives management requests from the Interstage Java EE 6 DAS service. |
| HTTP_LISTENER_PORT | 28292 | 1-65535 | Port number for the HTTP listener. For details, refer to " 7.7.3 Network Configuration Definition Items ". |
| HTTP_SSL_LISTENER_PORT | 28393 | 1-65535 | Port number for HTTP listener for SSL communication. For details, refer to " 7.7.3 Network Configuration Definition Items ". |
| IIOP_LISTENER_PORT | 29700 | 1-65535 | Port number for IIOP listener. For details, refer to " 7.7.4 IIOP Service Definition Items ". |
| IIOP_SSL_LISTENER_PORT | 29820 | 1-65535 | Port number for IIOP listener for SSL communication. For details, refer to " 7.7.4 IIOP Service Definition Items ". |
| IIOP_SSL_MUTUALAUTH_PORT | 29920 | 1-65535 | Port number for IIOP listener for SSL communication client certification. For details, refer to " 7.7.4 IIOP Service Definition Items ". |
| JMX_SYSTEM_CONNECTOR_PORT | 28696 | 1-65535 | This is the RMI registry connection port number that is used by the JMX connector. For details, refer to " 7.7.5 Managed Service Definition Items ". |
| JAVA_DEBUGGER_PORT | 29009 | 1-65535 | This is the connection port number for the Java Platform Debugger Architecture (JPDA). This port is opened when the Java VM debugger starts. |

Note) Refer to the notes in "[Appendix D Port Numbers](#)" for details on the port number range that can be specified.

Note) OSGI_SHELL_TELNET_PORT is not supported.



Example

Use as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set IJServer001.iiop-service.iiop-listener.orb-listener-1.port=${IIOPLISTENER_PORT}
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-system-properties --target IJServer001 IIOPLISTENER_PORT=33700
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-system-properties --target Instance002 IIOPLISTENER_PORT=23701
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin set IJServer001.iiop-service.iiop-listener.orb-listener-1.port=${IIOPLISTENER_PORT}
/opt/FJSVisje6/glassfish/bin/asadmin create-system-properties --target IJServer001 IIOPLISTENER_PORT=33700
/opt/FJSVisje6/glassfish/bin/asadmin create-system-properties --target Instance002 IIOPLISTENER_PORT=23701
```

Additionally, set a value for the following item per IJServer cluster. System properties cannot be set per server instance.

| Property name | Explanation |
|-------------------|--|
| JMS_PROVIDER_PORT | This is the JMS provider port number. For details, refer to " 7.7.10 JMS Service Definition Items ". |

Example

Use as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set IJServer001-config.jms-service.jms-host.default_JMS_host.port=${JMS_PROVIDER_PORT}
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set IJServer001-config.system-property.JMS_PROVIDER_PORT.value=37676
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin set IJServer001-config.jms-service.jms-host.default_JMS_host.port=${JMS_PROVIDER_PORT}
/opt/FJSVisje6/glassfish/bin/asadmin set IJServer001-config.system-property.JMS_PROVIDER_PORT.value=37676
```

Refer to the following also regarding the specification of system properties.

- [9.1.16.1 create-system-properties Subcommand](#)
- [9.1.16.2 delete-system-property Subcommand](#)
- [9.1.16.3 list-system-properties Subcommand](#)

7.7.2 HTTP Service Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|------------------|---|------------------------|-----|-----|------|------------------|
| *HTTP service | | | No | No | Yes | - |
| | Enabling the access log | access-logging-enabled | Yes | Yes | No | No |
| *HTTP access log | | | No | No | Yes | - |
| | Format | format | Yes | Yes | No | No |
| | Number of generations | max-history-files | Yes | Yes | No | No |
| | Rotation type | rotation-policy | Yes | Yes | No | No |
| | Log size | rotation-size | Yes | Yes | No | No |
| | Log collection time | rotation-time | Yes | Yes | No | No |
| | Log output directory | access-log | Yes | Yes | No | No |
| *HTTP trace log | | | No | No | Yes | - |
| | Enabling the trace log | enabled | Yes | Yes | No | Yes |
| | Log size | rotation-size | Yes | Yes | No | Yes |
| | Number of generations | max-history-files | Yes | Yes | No | Yes |

| Category | Property | Property name | get | set | list | Restart required |
|-----------------|------------------------------------|--------------------|-----|-----|------|------------------|
| | Log output directory for trace log | directory | Yes | Yes | No | Yes |
| *Virtual server | | | No | No | Yes | - |
| | Virtual server name | id | Yes | No | No | - |
| | IP address that receives requests | allowRemoteAddress | Yes | Yes | No | No (Note) |

Note) You do not need to restart after setting or modifying definitions. However, if setting values are omitted, although the setting of the definition item will be canceled, you will have to restart. If you do not restart, the virtual server will operate under the restrictions that applied before the cancellation.

*HTTP service

Definition Item Name

`${clusterName_instanceName_configName}.http-service`

Enabling the access log

Definition Item Name

`${clusterName_instanceName_configName}.http-service.access-logging-enabled`

Explanation

Specify whether to enable (true) or disable (false) the HTTP access log output.

Range

- true
- false

Default Value

true

However, if the value is omitted in the `asadmin set` subcommand (that is, if only the definition item name and "=" are specified), the system operates as if "false" has been set.

*HTTP access log

Definition Item Name

`${clusterName_instanceName_configName}.http-service.access-log`

Format

Definition Item Name

`${clusterName_instanceName_configName}.http-service.access-log.format`

Explanation

Items to be output to the access log.

For details on the definition items that can be set, refer to "[4.17.3 HTTP Access Log](#)".

Range

A string between 1 and 512 characters

Default Value

`%client.name% %client.id% %auth-user-name% %datetime% %request% %status% %response.length%
%headers.host% %cookies.JSESSIONID% %time-taken% %thread.id% %thread.name% %webserver.name%`

However, if the value is omitted in the `asadmin set` subcommand (that is, if only the definition item name and "=" are specified), the system operates as if the following has been set:

`%client.name% %auth-user-name% %datetime% %request% %status% %response.length%`

Number of generations

Definition Item Name

`${clusterName_instanceName_configName}.http-service.access-log.max-history-files`

Explanation

Specify the maximum number of generations of the HTTP access log file to be stored.

If the number of generations exceeds the maximum specified, the oldest generation log file is deleted.

Range

1-999

Default Value

5

Rotation type

Definition Item Name

`${clusterName_instanceName_configName}.http-service.access-log.rotation-policy`

Explanation

Select the rotation method for the HTTP access log.

- `logsize`: Log size
- `time`: Log collection time
- `interval`: One-day intervals from startup

Range

- `logsize`
- `time`
- `interval`

Default Value

`logsize`

However, if the value is omitted in the `asadmin set` subcommand (that is, if only the definition item name and "=" are specified), the system operates as if "interval" has been set.

Log size

Definition Item Name

`${clusterName_instanceName_configName}.http-service.access-log.rotation-size`

Explanation

The HTTP access log maximum size is specified.

If the size that was specified for the log file is reached, rotation is performed.

Range

1-512(MB)

Default Value

1(MB)

Log collection time

Definition Item Name

`${clusterName_instanceName_configName}.http-service.access-log.rotation-time`

Explanation

The time at which rotation is executed for the HTTP access log is specified. Rotation is performed at the specified time each day.

Range

0-23(Hours)

Default Value

0(Hours)

Log output directory

Definition Item Name

`${clusterName_instanceName_configName}.http-service.virtual-server.server.access-log`

Explanation

Specify the full path of the directory that will output the HTTP access log.

Specify the path so that its length, including the file name after rotation, is within the maximum value range for the OS.

If the beginning of the value that was specified is not `${com.sun.aas.instanceRoot}`:

- the directory is created under the directory that was specified using the server instance name, and the log files are output under that directory.
- the directory that outputs log files will not be deleted when the IJServer cluster and server instances are deleted. Delete these manually.

Range

String

Default Value

`${com.sun.aas.instanceRoot}/logs/access`

*HTTP trace log

Definition Item Name

`${clusterName_instanceName_configName}.http-service.isjee-trace-log`

Enabling the trace log

Definition Item Name

`${clusterName_instanceName_configName}.http-service.isjee-trace-log.enabled`

Explanation

Specify whether to enable (true) or disable (false) output of HTTP trace logs.

Range

- true
- false

Default Value

true

Log size

Definition Item Name

`${clusterName_instanceName_configName}.http-service.isjee-trace-log.rotation-size`

Explanation

The HTTP access log maximum size is specified.

If the size that was specified for the log file is reached, rotation is performed.

Range

1-2000(MB)

Default Value

10

Number of generations

Definition Item Name

`${clusterName_instanceName_configName}.http-service.isjee-trace-log.max-history-files`

Explanation

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.

Range

1-999

Default Value

10

Log output directory for trace log

Definition Item Name

`${clusterName_instanceName_configName}.http-service.isjee-trace-log.directory`

Explanation

Specify the full path of the directory that will output the HTTP trace log.

Specify the path so that its length, including the file name after rotation, is within the maximum value range for the OS.

If the beginning of the value that was specified is not `${com.sun.aas.instanceRoot}`:

- the directory is created under the directory that was specified using the server instance name, and the log files are output under that directory
- the directory that outputs log files will not be deleted when the IJServer cluster and server instances are deleted. Delete these manually.

Range

String

Default Value

`${com.sun.aas.instanceRoot}/logs/http`

***Virtual server**

Definition Item Name

`${clusterName_instanceName_configName}.http-service.virtual-server.${server-id}`

Virtual server name

Definition Item Name

`${clusterName_instanceName_configName}.http-service.virtual-server.${server-id}.id`

Explanation

This is the virtual server name.

Default Value

- server(for the HTTP listener or the HTTPS listener)
- __asadmin(for the operation management HTTP listener)

IP address that receives requests

Definition Item Name

`${clusterName_instanceName_configName}.http-service.virtual-server.${server-id}.property.allowRemoteAddress`

Explanation

Specify the IP address the web container uses to receive requests, as a regular expression. To specify multiple patterns, use a comma (",") delimiter. If specified, it will only accept requests from specified IP addresses; all other requests will return a status code 403 (Forbidden).

 **Note**

- For operations that go through a web server, the web server IP address is specified; operations that do not go through a web server have the IP address of the access source specified. Note that when linking with a web server on the same machine, the IP address set in the definition item "[Network address](#)" is used for the specified IP address. However, if the network address value is "0.0.0.0", specify "127.0.0.1".
- In regular expressions, a period (".") can be used for any character. To specify a period, precede it with a backslash (\) escape character. Refer to the `java.util.regex`. Pattern class specifications for details on regular expressions.

Range

IP format (regular expressions)

Default Value

None

If you omitted the value with the `asadmin set` subcommand, and only specified the definition item name and "=", this setting is deleted.

In such cases, restart the target for setting.

7.7.3 Network Configuration Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|------------------------|--|-----------------------------------|-----|-----|------|------------------|
| *Network configuration | | | No | No | Yes | - |
| *Protocols | | | No | No | Yes | - |
| *Protocol | | | No | No | Yes | - |
| | Protocol name | name | Yes | No | No | - |
| | Security of HTTP listener | security-enabled | Yes | No | No | - |
| *HTTP | | | No | No | Yes | - |
| | Connection upload timeout | connection-upload-timeout-millis | Yes | Yes | No | No |
| | Enabling DNS reverse lookup for remote hosts | dns-lookup-enabled | Yes | Yes | No | No |
| | Enabling DNS reverse lookup for local hosts | dns-lookup-enabled-for-local-name | Yes | Yes | No | No |
| | Number of requests that can be processed in one connection | max-connections | Yes | Yes | No | No |
| | Maximum POST request size | max-post-size-bytes | Yes | Yes | No | No |
| | Maximum value for the number of HTTP request parameters | max-request-parameters | Yes | Yes | No | No |
| | Operation mode for access to the web container | request-check | Yes | Yes | No | No |
| | Keep alive timeout | timeout-seconds | Yes | Yes | No | No |
| | Encoding that is used in request URI analysis | uri-encoding | Yes | Yes | No | No |
| | X-Powered-By header field | xpowered-by | Yes | Yes | No | No |
| *SSL | | | No | No | Yes | - |
| | Certificate nickname | cert-nickname | Yes | Yes | No | No |
| | Client authentication | client-auth | Yes | Yes | No | No |
| | Enabling SSL 3.0 | ssl3-enabled | Yes | Yes | No | No |
| | Enabling TLS 1.0 | tls-enabled | Yes | Yes | No | No |
| | Encryption method group | ssl3-tls-ciphers | Yes | Yes | No | No |
| *Network listeners | | | No | No | Yes | - |

| Category | Property | Property name | get | set | list | Restart required |
|--------------------------|-------------------------------|-----------------------|-----|-----|------|------------------|
| *Network listener | | | No | No | Yes | - |
| | Network address | address | Yes | Yes | No | Yes |
| | Enabling HTTP listener | enabled | Yes | Yes | No | No |
| | HTTP listener name | name | Yes | No | No | - |
| | Port number | port | Yes | Yes | No | (Note) |
| | Listener protocol | protocol | Yes | No | No | - |
| | Listener thread pool | thread-pool | Yes | No | No | - |
| | Listener transport | transport | Yes | No | No | - |
| *Transports | | | No | No | Yes | - |
| *Transport | | | No | No | Yes | - |
| | Acceptor threads | acceptor-threads | Yes | Yes | No | No |
| | Receive buffer size | buffer-size-bytes | Yes | Yes | No | No |
| | Maximum number of connections | max-connections-count | Yes | Yes | No | No |
| | Transport name | name | Yes | No | No | - |

Note)

HTTP(HTTPS) listener:No, operation management HTTP Listener:Yes

*Network configuration

Definition Item Name

`${clusterName_instanceName_configName}.network-config`

*Protocols

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols`

*Protocol

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}`



Point

Specify the following in `${network-listener-name}`:

- HTTP listener:http-listener-1
- HTTPS listener:http-listener-2

Protocol name

Definition Item Name

```
${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.name
```

Explanation

This is the Protocol name.

Default Value

- HTTP listener:http-listener-1
- HTTPS listener:http-listener-2

Security of HTTP listener

Definition Item Name

```
${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.security-enabled
```

Explanation

This indicates whether the listener is for HTTPS use (true) or not (false).

Default Value

- HTTP listener(http-listener-1):false
- HTTPS listener(http-listener-2):true

*HTTP

Definition Item Name

```
${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.http
```

Connection upload timeout

Definition Item Name

```
${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.http.connection-upload-timeout-millis
```

Explanation

This is the length of the timeout (unit: milliseconds) until reception of data is stopped, whenever reception of request message headers and POST request message bodies is lost for the specified time or longer due to a connection upload timeout.

Range

1-2147483647(milliseconds)

Default Value

60000(milliseconds)

However, if the value is omitted in the `asadmin set` subcommand (that is, if only the definition item name and "=" are specified), the system operates as if 300000 (milliseconds) has been set.

Enabling DNS reverse lookup for remote hosts

Definition Item Name

```
${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.http.dns-lookup-enabled
```

Explanation

Specify whether to enable (true) or not enable (false) DNS reverse lookup.

- true

DNS reverse lookup is performed. However, if linked with a web server and the web server performs reverse lookup, then reverse lookup is not performed by the web container. In either case, `ServletRequest#getRemoteHost()` returns the reverse lookup result.

- false

DNS reverse lookup is not performed. Note that if linked with a web server and the web server performs reverse lookup, then `ServletRequest#getRemoteHost ()` returns the reverse lookup result.

Range

- true

- false

Default Value

false

Enabling DNS reverse lookup for local hosts

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.http.dns-lookup-enabled-for-local-name`

Explanation

This definition item is only enabled when not linked with a web server.

Specify whether to enable (true) or not enable (false) DNS reverse lookup.

Range

- true

- false

Default Value

true

Number of requests that can be processed in one connection

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.http.max-connections`

Explanation

Specify whether keep alive is enabled/disabled, and the number of requests that can be processed in one connection.

- 0: Keep alive disabled

- -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 that can be processed in one connection

Range

-1-2147483647

Default Value

0

However, if the value is omitted in the `asadmin set` subcommand (that is, if only the definition item name and "=" are specified), the system operates as if 256 has been set.

Maximum POST request size

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.http.max-post-size-bytes`

Explanation

Specify the maximum size of message bodies sent by POST (in bytes).

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:

- `getParameter`
- `getParameterNames`
- `getParameterValues`
- `getParameterMap`

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.
- When using the Servlet file upload feature, this limit value will not be enabled.

Range

1-2147483647(Byte)

Default Value

2097152(Byte)

Maximum value for the number of HTTP request parameters

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.http.max-request-parameters`

Explanation

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 "-1" was specified, the number of parameters is unlimited.

Note that, if the maximum size for POST requests (`max-post-size-bytes`) has also been specified, the maximum size limitation on the POST requests is enabled first.

Range

-1-2147483647

Default Value

10000

Operation mode for access to the web container

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.http.request-check`

Explanation

Specify the operation mode for access to the web container.

- 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. A WEB0791 message will be output to the server log.
- 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. A WEB0791 message will be output to the server log.
- nocheck
Specify this when sending a request via the web server, and sending a request directly to the web container with fault monitoring, etc. A check of operation configurations will not be performed. In such cases, specify the IP address of either the web server connector or the load balancer in the definition item, [IP address that receives requests](#), in order to strengthen security.

Range

- direct
- webserver
- nocheck

Default Value

direct

However, if the value is omitted in the `asadmin set` subcommand (that is, if only the definition item name and "=" are specified), the system operates as if "nocheck" has been set.

Keep alive timeout

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.http.timeout-seconds`

Explanation

This is the maximum number of seconds the keep alive connection will be retained.

Range

10-2147483647(Seconds)

Default Value

15

However, if the value is omitted in the `asadmin set` subcommand (that is, if only the definition item name and "=" are specified), the system operates as if 30 has been set.

Encoding that is used in request URI analysis

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.http.uri-encoding`

Explanation

The encoding that is used in request URI analysis is specified.

Range

Encoding supported in Java, such as "SJIS" and "EUC_JP"

Default Value

UTF-8

X-Powered-By header field

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.http.xpowered-by`

Explanation

Determines whether to include (true) or not include (false) the X-Powered-By header field in the HTTP response header generated by the web container.

Range

- true
- false

Default Value

false

However, if the value is omitted in the `asadmin set` subcommand (that is, if only the definition item name and "=" are specified), the system operates as if "true" has been set.

*SSL

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.ssl`

Certificate nickname

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.ssl.cert-nickname`

Explanation

Specify the other name for certificates included in the keystore.

Range

String

Default Value

s1as

If the value is omitted with the `asadmin set` subcommand (specification of only the definition item name and "=") this definition will be deleted.

If this item has been deleted, you will be unable to receive requests from clients with SSL.

Client authentication

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.ssl.client-auth`

Explanation

Specify the client authentication operations. One of the following must be specified:

- null characters
Client authentication is not performed.
- want
Client authentication is performed if a client certificate has been sent.
If a client certificate has not been sent, processing continues without performing client authentication.
- need
Client authentication must be performed.
If a client certificate has not been sent, an authentication error will occur.

Range

- null characters
- want
- need

Default Value

null characters

Enabling SSL 3.0

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.ssl.ssl3-enabled`

Explanation

Specify whether SSL 3.0 is to be enabled (true) or not enable (false).

Range

- true
- false

Default Value

true



Note

- As security is weakened if this definition item is set to "false", you must set it to "true" in the operating environment.
- Operation is not supported if both this definition item and [Enabling TLS 1.0](#) are set to "false".

Enabling TLS 1.0

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.ssl.tls-enabled`

Explanation

Specify whether TLS1.0 is to be enabled (true) or not enabled (false).

Range

- true
- false

Default Value

true

Note

- As security is weakened if this definition item is set to "false", you must set it to "true" in the operating environment.
- Operation is not supported if both this definition item and [Enabling SSL 3.0](#) are set to "false".

Encryption method group

Definition Item Name

`${clusterName_instanceName_configName}.network-config.protocols.protocol.${protocol-name}.ssl.ssl3-tls-ciphers`

Explanation

Specify the encryption methods that can be used with SSL3.0/TLS1.0. Add a plus sign (+) as a prefix to the encryption method when specifying it. To specify multiple encryption methods, use a comma (",") delimiter. Only the specified encryption method can be used when this item is specified.

Range

The encryption method noted in the default values, plus ("+"), comma (",").

Default Value

If the value is omitted with the `asadmin set` subcommand (specification of only the definition item name and "=") this definition will be deleted.

If this item has been deleted, then all of the usable encryption methods below will be enabled.

| Encryption method | JDK6 | JDK7 |
|--|------|------|
| SSL_DHE_DSS_EXPORT_WITH_DES40_CBC_SHA | Yes | No |
| SSL_DHE_DSS_WITH_3DES_EDE_CBC_SHA | Yes | Yes |
| SSL_DHE_DSS_WITH_DES_CBC_SHA | Yes | No |
| SSL_DHE_RSA_EXPORT_WITH_DES40_CBC_SHA | Yes | No |
| SSL_DHE_RSA_WITH_3DES_EDE_CBC_SHA | Yes | Yes |
| SSL_DHE_RSA_WITH_DES_CBC_SHA | Yes | No |
| SSL_RSA_EXPORT_WITH_DES40_CBC_SHA | Yes | No |
| SSL_RSA_EXPORT_WITH_RC4_40_MD5 | Yes | No |
| SSL_RSA_WITH_3DES_EDE_CBC_SHA | Yes | Yes |
| SSL_RSA_WITH_DES_CBC_SHA | Yes | No |
| SSL_RSA_WITH_RC4_128_MD5 | Yes | Yes |
| SSL_RSA_WITH_RC4_128_SHA | Yes | Yes |
| TLS_DHE_DSS_WITH_AES_128_CBC_SHA | Yes | Yes |
| TLS_DHE_DSS_WITH_AES_128_CBC_SHA256 | No | Yes |
| TLS_DHE_RSA_WITH_AES_128_CBC_SHA | Yes | Yes |
| TLS_DHE_RSA_WITH_AES_128_CBC_SHA256 | No | Yes |
| TLS_ECDH_ECDSA_WITH_3DES_EDE_CBC_SHA | No | Yes |
| TLS_ECDH_ECDSA_WITH_AES_128_CBC_SHA | No | Yes |
| TLS_ECDH_ECDSA_WITH_AES_128_CBC_SHA256 | No | Yes |
| TLS_ECDH_ECDSA_WITH_RC4_128_SHA | No | Yes |
| TLS_ECDH_RSA_WITH_3DES_EDE_CBC_SHA | No | Yes |

| Encryption method | JDK6 | JDK7 |
|---|------|------|
| TLS_ECDH_RSA_WITH_AES_128_CBC_SHA | No | Yes |
| TLS_ECDH_RSA_WITH_AES_128_CBC_SHA256 | No | Yes |
| TLS_ECDH_RSA_WITH_RC4_128_SHA | No | Yes |
| TLS_ECDHE_ECDSA_WITH_3DES_EDE_CBC_SHA | No | Yes |
| TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA | No | Yes |
| TLS_ECDHE_ECDSA_WITH_AES_128_CBC_SHA256 | No | Yes |
| TLS_ECDHE_ECDSA_WITH_RC4_128_SHA | No | Yes |
| TLS_ECDHE_RSA_WITH_3DES_EDE_CBC_SHA | No | Yes |
| TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA | No | Yes |
| TLS_ECDHE_RSA_WITH_AES_128_CBC_SHA256 | No | Yes |
| TLS_ECDHE_RSA_WITH_RC4_128_SHA | No | Yes |
| TLS_RSA_WITH_AES_128_CBC_SHA | Yes | Yes |
| TLS_RSA_WITH_AES_128_CBC_SHA256 | No | Yes |
| TLS_EMPTY_RENEGOTIATION_INFO_SCSV | Yes | Yes |

Yes: Can be used, No: Cannot be used

Point

- The encryption cipher is displayed in the following format:
[SSL or TLS]_[method used in key sharing]_WITH_[method used in message encryption]_[hash function]
- If "EXPORT" is contained in the method used in key sharing, the key length is restricted to 52 bits. If it is not contained, there is no restriction on key length.
- Key length and block length of method used in message encryption are as follows:

| Notation used in message encryption | Key length | Block length |
|-------------------------------------|------------|--------------|
| 3DES_EDE_CBC | 168 bit | 64 bit |
| AES_128_CBC | 128 bit | 128 bit |
| DES_CBC | 56 bit | 64 bit |
| DES40_CBC | 40 bit | 64 bit |
| RC4_128 | 128 bit | - |
| RC4_40 | 40 bit | - |

- Use one of the following for the hash function:

| Hash function notation | Hash function |
|------------------------|---------------|
| MD5 | MD5 |
| SHA | SHA-1 |
| SHA256 | SHA-256 |

Note

- Encryption methods used by SSL communications depend on the encryption methods and priorities supported by web browser clients. Refer to client documentation for details on client side operations.
- Check whether method used in key sharing, method used in message encryption, and hash functions specified in this definition item are recommended by the latest standards and guidelines formulated by official bodies such as the following:
 - NIST(National Institute of Standards and Technology)
SP 800-57: Recommendation for Key Management
SP 800-131A: Transitions: Recommendation for Transitioning the Use of Cryptographic Algorithms and Key Lengths
 - European Network of Excellence in Cryptology(ECRYPT) II
ECRYPT II Yearly Report on Algorithms and Key Lengths
 - Ministry of Internal Affairs and Communications, Ministry of Economy, Trade and Industry
List of Recommendable Cryptographic Techniques for Procurement Activities by Japan e-Government (CRYPTREC Ciphers List)

*Network listeners

Definition Item Name

`${clusterName_instanceName_configName}.network-config.network-listeners`

*Network listener

Definition Item Name

`${clusterName_instanceName_configName}.network-config.network-listeners.network-listener.${network-listener-name}`

Point

Specify the following in `${network-listener-name}`:

- HTTP listener:http-listener-1
- HTTPS listener:http-listener-2
- Operation management HTTP listener: admin-listener

Network address

Definition Item Name

`${clusterName_instanceName_configName}.network-config.network-listeners.network-listener.${network-listener-name}.address`

Explanation

Specify the IP address bound by the HTTP listener.
Specify the IP address used by the HTTP listener when there are multiple IP addresses in a server.
Specify "0.0.0.0" to use all valid server IP addresses.

Range

String

Default Value

0.0.0.0

Enabling HTTP listener

Definition Item Name

`${clusterName_instanceName_configName}.network-config.network-listeners.network-listener.${network-listener-name}.enabled`

Explanation

Specify whether to enable (true) or not enable (false) the HTTP listener. If false is specified, the port will be blocked.



In the following case, linkages with the web server are deleted and the "Operation mode for access to the web container" is set to "direct".

- If "false" has been specified for IJServer clusters that are linked to a web server

For that reason, a message containing the settings result for "Operation mode for access to the web container" may also be output when setting this definition item.

Range

- true
- false

Default Value

true

HTTP listener name

Definition Item Name

`${clusterName_instanceName_configName}.network-config.network-listeners.network-listener.${network-listener-name}.name`

Explanation

This is the HTTP listener name.

Default Value

- HTTP listener:http-listener-1
- HTTPS listener:http-listener-2
- Operation management HTTP listener: admin-listener

Port number

Definition Item Name

`${clusterName_instanceName_configName}.network-config.network-listeners.network-listener.${network-listener-name}.port`

Explanation

This is the standby port number of the listener.

The port number of the server instance under the IJServer cluster is defined as the system property.

- HTTP listener:http-listener-1
- HTTPS listener:http-listener-2
- Operation management HTTP listener: admin-listener

To change the port number of the server instance under the IJServer cluster, do not update this item. Change the system property value instead.

To change the port number of the Operation management HTTP listener, refer to [6.1 Interstage Java EE 6 DAS Service Tuning](#).

Range

1-65535

Solaris32/64 Linux32/64

If a Java EE application is operated by a general user, ports 1-1024 cannot be used.

Default Value

- Interstage Java EE 6 DAS Service
 - HTTP listener:28282
 - HTTPS listener:28383
 - Operation management HTTP listener:12011
- Server instances under IJServer clusters
 - HTTP listener: system property HTTP_LISTENER_PORT(automatic assignment of port number)
 - HTTPS listener: system property HTTP_SSL_LISTENER_PORT(automatic assignment of port number)
 - Operation management HTTP listener: system property ASADMIN_LISTENER_PORT(automatic assignment of port number)

If the value is omitted with the asadmin set subcommand (specification of only the definition item name and "=") the port number settings will be deleted. So you should not perform this operation.

Listener protocol

Definition Item Name

`${clusterName_instanceName_configName}.network-config.network-listeners.network-listener.${network-listener-name}.protocol`

Explanation

This is the protocol name referenced by the listener.

Default Value

- HTTP listener:http-listener-1
- HTTPS listener:http-listener-2

Listener thread pool

Definition Item Name

`${clusterName_instanceName_configName}.network-config.network-listeners.network-listener.${network-listener-name}.thread-pool`

Explanation

This is the thread pool name referenced by the listener.

Default Value

- HTTP listener/HTTPS listener:http-thread-pool

Listener transport

Definition Item Name

`${clusterName_instanceName_configName}.network-config.network-listeners.network-listener.${network-listener-name}.transport`

Explanation

This is the transport name referenced by the listener.

Default Value

tcp

*Transports

Definition Item Name

`${clusterName_instanceName_configName}.network-config.transports`

*Transport

Definition Item Name

`${clusterName_instanceName_configName}.network-config.transports.transport.tcp`

Acceptor threads

Definition Item Name

`${clusterName_instanceName_configName}.network-config.transports.transport.tcp.acceptor-threads`

Explanation

The number of Acceptor threads is modified.

The acceptor thread queues in line connections that have accepted TCP connections, and keep alive connections, into the thread pool queue when detecting the receipt of data. If there are available threads in the thread pool, application processing will be performed.

Normally, there is no need to change this from the default (1).

To change this, set a value that does not exceed the number of CPUs in your system.

Range

1-2147483647

Default Value

1

Receive buffer size

Definition Item Name

`${clusterName_instanceName_configName}.network-config.transports.transport.tcp.buffer-size-bytes`

Explanation

This setting specifies the size of the buffer to be used for parsing request lines and headers. Increase the value if you are using large cookies, or the content of headers becomes large, for example.

Note that you must specify a value that fulfills the expression below:

```
receive buffer size > total size of request line and all request headers
```

If the total size of request line and all request headers exceeds the specified size, GRIZZLY0039 or GRIZZLY0040 is output to the server log, and the status codes 414 (Request-URI Too Long) and 400 (Bad Request) are returned.

Also, if the value of this item is increased, memory usage (heap area) may also increase.

Add the estimated value to the memory usage with the expression below:

```
receive buffer size * maximum pool size of thread pool (in bytes)
```

Range

1-2147483647(Byte)

Default Value

49152(Byte)

However, if the value is omitted in the asadmin set subcommand (that is, if only the definition item name and "=" are specified), the system operates as if 8192 (bytes) has been set.

Maximum number of connections

Definition Item Name

#{clusterName_instanceName_configName}.network-config.transports.transport.tcp.max-connections-count

Explanation

This is the backlog number of listener port sockets.
The connection request can be held until the connection is accepted.



Depending on the OS settings, the number of requests that can be retained in the socket backlog may differ from the settings values for this property.

In Windows in particular, even if values higher than 200 are specified, they will be treated as 200.

Range

1-2147483647

Default Value

200

However, if the value is omitted in the asadmin set subcommand (that is, if only the definition item name and "=" are specified), the system operates as if 4096 has been set.

Transport name

Definition Item Name

#{clusterName_instanceName_configName}.network-config.transports.transport.tcp.name

Explanation

This is the transport name.

Default Value

tcp

7.7.4 IIOP Service Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|---------------|----------|---------------|-----|-----|------|------------------|
| *IIOP Service | | | No | No | Yes | - |
| *ORB | | | No | No | Yes | - |

| Category | Property | Property name | get | set | list | Restart required |
|-----------------------|-----------------------------------|---------------------------|-----|-----|------|------------------|
| | Tread pool ID | use-thread-pool-ids | Yes | Yes | No | Yes |
| | Maximum message fragment size | message-fragment-size | Yes | Yes | No | Yes |
| | Total number of connections | max-connections | Yes | Yes | No | Yes |
| | ORB additional property | property.\${PropertyName} | Yes | Yes | No | Yes |
| *IIOP listener | | | No | No | Yes | - |
| | IIOP listener name | id | Yes | No | No | - |
| | Network address | address | Yes | Yes | No | Yes |
| | Listener port | port | Yes | Yes | No | Yes |
| | Listener | enabled | Yes | Yes | No | Yes |
| | IIOP listener additional property | property.\${PropertyName} | Yes | Yes | No | Yes |

*IIOP Service

Definition Item Name

`${clusterName_instanceName_configName}.iiop-service`

*ORB

Definition Item Name

`${clusterName_instanceName_configName}.iiop-service.orb`

Tread pool ID

Definition Item Name

`${clusterName_instanceName_configName}.iiop-service.orb.use-thread-pool-ids`

Explanation

The thread pool ID of the default thread pool is specified.

Specify "thread-pool-1".

Range

String

Default Value

thread-pool-1

Note that you cannot omit a value in the asadmin set subcommand, and specify only the definition item name and "=".

Maximum message fragment size

Definition Item Name

`${clusterName_instanceName_configName}.iiop-service.orb.message-fragment-size`

Explanation

The maximum IIOp message fragment size is set.

Note

Do not set a value that is less than 1024bytes. If the maximum message separation size is less than 1,024 bytes, the number of threads that are required in the server may exceed the estimated number.

Range

128-2147483647(Byte)

Default Value

1024

Total number of connections

Definition Item Name

`${clusterName_instanceName_configName}.iiop-service.orb.max-connections`

Explanation

Specify the maximum number of simultaneous connections for IIOp communication.

Range

0-2147483647

Default Value

1024

ORB additional property

Definition Item Name

`${clusterName_instanceName_configName}.iiop-service.orb.property.${PropertyName}`

Explanation

Specify the optional property name.

Range

- Property name
- String
- Property value
- String

Default Value

None

*IIOp listener

Definition Item Name

`${clusterName_instanceName_configName}.iiop-service.iiop-listener.${iiop-listener-id}`

Point

Specify the following in `${iiop-listener-id}`:

- `orb-listener-1`: IIOP(ORB) listener port
- `SSL`: IIOP/SSL listener port
- `SSL_MUTUALAUTH`: IIOP/SSL listener port for mutual authentication

IIOP listener name

Definition Item Name

`${clusterName_instanceName_configName}.iiop-service.iiop-listener.${iiop-listener-id}.id`

Explanation

A name for identifying the listener is specified.

Range

- `orb-listener-1`
- `SSL`
- `SSL_MUTUALAUTH`

Default Value

`${iiop-listener-id}`

Network address

Definition Item Name

`${clusterName_instanceName_configName}.iiop-service.iiop-listener.${iiop-listener-id}.address`

Explanation

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.

If "0.0.0.0" is specified, the IP address of the server host is used for IIOP communication with the server application.

Note

Do not specify an IP address when in IPv6/IPv4 dual stack configuration.

Range

String

Default Value

0.0.0.0

Note that you cannot omit a value in the `asadmin set` subcommand, and specify only the definition item name and "=".

Listener port

Definition Item Name

`${clusterName_instanceName_configName}.iiop-service.iiop-listener.${iiop-listener-id}.port`

Explanation

The listener standby port number is entered.

Note

The port number of the server instance under the IJServer cluster is defined as the system property.

To change the port number of the server instance under the IJServer cluster, do not update this item. Change the system property value instead.

For details on the system properties, refer to "[7.7.1 Properties Used when Creating and Updating Definitions](#)".

Range

1-65535

Solaris32/64 **Linux32/64**

If a Java EE application is operated by a general user, ports 1-1024 cannot be used.

Default Value

- Interstage Java EE 6 DAS service:
 - IIOP listener name is orb-listener-1:
23610
 - IIOP listener name is SSL:
23611
 - IIOP listener name is SSL_MUTUALAUTH:
23612
- Server instance under IJServer cluster:
 - IIOP listener name is orb-listener-1:
"\${IIOP_LISTENER_PORT}"
 - IIOP listener name is SSL:
"\${IIOP_SSL_LISTENER_PORT}"
 - IIOP listener name is SSL_MUTUALAUTH:
"\${IIOP_SSL_MUTUALAUTH_PORT}"

However, if the value is omitted in the asadmin set subcommand (that is, if only the definition item name and "=" are specified), the system operates as if 1072 has been set.

Listener

Definition Item Name

`${clusterName_instanceName_configName}.iiop-service.iiop-listener.${iiop-listener-id}.enabled`

Explanation

Whether to enable (true) or disable (false) the listener is specified.

Range

- true
- false

Default Value

- Interstage Java EE 6 DAS service:
true

- Server instance under IJServer cluster:
 - IIOP listener name is orb-listener-1:
true
 - IIOP listener name is SSL:
false
 - IIOP listener name is SSL_MUTUALAUTH:
false

However, if the value is omitted in the asadmin set subcommand (that is, if only the definition item name and "=" are specified), the system operates as if "true" has been set.

IIOP listener additional property

Definition Item Name

`${clusterName_instanceName_configName}.iiop-service.iiop-listener.${iiop-listener-id}.property.${PropertyName}`

Explanation

Specify the optional property name.

Range

String

Default Value

None

7.7.5 Managed Service Definition Items

Definition Items

| Item name | Property name | get | set | list | Restart required |
|-------------------------------------|-----------------|-----|-----|------|------------------|
| Address | address | Yes | Yes | No | Yes |
| Port | port | Yes | Yes | No | Yes |
| Security realm name | auth-realm-name | Yes | No | No | - |

Address

Definition Item Name

`${clusterName_instanceName_configName}.admin-service.jmx-connector.${name}.address`

Explanation

This is specified in the IP address of the specified service when registering the JMX connector server stub. If the system has multiple IP addresses (network interfaces), specify an IP address that can be referenced from the server to which the connection is made.

To allow access from all network interfaces, specify '0.0.0.0'.

Range

String

Default Value

0.0.0.0

Port

Definition Item Name

`${clusterName_instanceName_configName}.admin-service.jmx-connector.${name}.port`

Explanation

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.

Solaris32/64 Linux32/64

If a Java EE application is operated by a general user, ports 1-1024 cannot be used.

Note)

The port number of the server instance under the IJServer cluster is defined as the system property.

To change the port number of the server instance under the IJServer cluster, do not update this item. Change the system property value instead.

For details on the system properties, refer to "[7.7.1 Properties Used when Creating and Updating Definitions](#)".

Range

- Interstage Java EE 6 DAS service:

1-65535

- Server instance under IJServer cluster:

`${JMX_SYSTEM_CONNECTOR_PORT}` (Note)

Default Value

- Interstage Java EE 6 DAS service:

18686

However, if the value is omitted in the `asadmin set` subcommand (that is, if only the definition item name and "=" are specified), the system operates as if 8686 has been set.

- Server instance under IJServer cluster:

System property `JMX_SYSTEM_CONNECTOR_PORT` default value (Note)

Security realm name

Definition Item Name

`${clusterName_instanceName_configName}.admin-service.jmx-connector.${name}.auth-realm-name`

Explanation

This is the name of the security realm used during authentication.

Default Value

admin-realm

7.7.6 Connector Service Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|------------------------------------|----------------------------------|-----------------------------|-----|-----|------|------------------|
| *Connector service | | | No | No | Yes | - |
| | Shutdown timeout | shutdown-timeout-in-seconds | Yes | Yes | No | Yes |

*Connector service

Definition Item Name

`${clusterName_instanceName_configName}.connector-service`

Shutdown timeout

Definition Item Name

`${clusterName_instanceName_configName}.connector-service.shutdown-timeout-in-seconds`

Explanation

Number of seconds that the application server waits for completion of resource adapter stop processing.

Range

1-2147483647(Seconds)

Default Value

30

7.7.7 Web Container Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|---------------------|----------------------------|----------------------|-----|-----|------|------------------|
| *Web container | | | No | No | Yes | - |
| Additional property | | | | | | |
| | Dispatch count upper limit | dispatcher-max-depth | Yes | Yes | No | Yes |

*Web container

Definition Item Name

`${clusterName_instanceName_configName}.web-container`

Dispatch count upper limit

Definition Item Name

`${clusterName_instanceName_configName}.web-container.property.dispatcher-max-depth`

Explanation

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.

Range

1-2147483647(count)

Default Value

20(count)

7.7.8 EJB Container Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|---|---|--|-----|-----|------|------------------|
| *EJB container | | | No | No | Yes | - |
| Enterprise Bean instance caching (Stateful Session Bean definition item) | | | | | | |
| | Change in cache size | cache-resize-quantity | Yes | Yes | No | Yes |
| | Maximum cache size | max-cache-size | Yes | Yes | No | Yes |
| | Cache Idle Timeout | cache-idle-timeout-in-seconds | Yes | Yes | No | Yes |
| | Delete timeout | removal-timeout-in-seconds | Yes | Yes | No | Yes |
| | Delete policy for selected contents | victim-selection-policy | Yes | Yes | No | Yes |
| | Session storage location | session-store | Yes | Yes | No | Yes |
| Enterprise Bean instance pooling (Stateless Session Bean definition item) | | | | | | |
| | Initial and Minimum pool size | steady-pool-size | Yes | Yes | No | Yes |
| | Change in pool size | pool-resize-quantity | Yes | Yes | No | Yes |
| | Maximum pool size | max-pool-size | Yes | Yes | No | Yes |
| | Pool Idle Timeout | pool-idle-timeout-in-seconds | Yes | Yes | No | Yes |
| *EJB Timer service | | | No | No | Yes | - |
| | Minimum delivery interval | minimum-delivery-interval-in-millis | Yes | Yes | No | Yes |
| | Maximum number of re-deliveries | max-redeliveries | Yes | Yes | No | Yes |
| | Timer data source | timer-datasource | Yes | Yes | No | Yes |
| | Re-delivery interval | redelivery-interval-internal-in-millis | Yes | Yes | No | Yes |
| | EJB Timer service additional property | redelivery-interval-internal-in-millis | Yes | Yes | No | - |
| Additional property | | | | | | |
| | Asynchronous Process Thread Maximum Pool Size | | Yes | Yes | No | Yes |

*EJB container

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container`

Change in cache size

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.cache-resize-quantity`

Explanation

Number of Bean instances passivated and removed from the cache when passivate occurs. (Note 2)
Specify a value lower than the value specified in [Maximum cache size](#).

Range

1-2147483647

Default Value

32

Maximum cache size

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.max-cache-size`

Explanation

This is the number that determines whether the cached Bean instance will be a target of passivate. (Note 1)(Note 2)

If 0 is set, the cache size is unlimited.

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.

Specify a value higher than the value specified in [Change in cache size](#).

Range

0-2147483647

Default Value

512

Cache Idle Timeout

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.cache-idle-timeout-in-seconds`

Explanation

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 instance becomes a passivate target. (Note 2)

If 0 is set, then the cache idle timeout does not operate.

Range

0-2147483647(Seconds)

Default Value

600

Delete timeout

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.removal-timeout-in-seconds`

Explanation

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. (Note 3)
If 0 is set, then 'Delete timeout' does not operate.

Range

0-2147483647(Seconds)

Default Value

5400

Delete policy for selected contents

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.victim-selection-policy`

Explanation

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.

- 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)

Range

- nru
- fifo
- lru

Default Value

nru

Session storage location

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.session-store`

Explanation

Directory where the interactive status of passivated Bean instances is stored.

If empty spaces have been specified, the path of the IJServer cluster current directory will be applied. If a relative path was specified, the relative path from the IJServer cluster current directory will be used.

Range

String

Default Value

`${com.sun.aas.instanceRoot}/session-store`

However, if the value is omitted in the `asadmin` set subcommand (that is, if only the definition item name and "=" are specified), the system operates as if the IJServer current directory path has been set.

Initial and Minimum pool size

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.steady-pool-size`

Explanation

This is the number of instances that will be secured in the pool.

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.

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.

Specify a value lower than the value specified in [Maximum pool size](#).

Range

0-2147483647

Default Value

0

Change in pool size

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.pool-resize-quantity`

Explanation

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.

Specify a value lower than the value specified in [Maximum pool size](#).

Range

0-2147483647

Default Value

8

Maximum pool size

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.max-pool-size`

Explanation

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.

Specify a value higher than the value specified in both [Initial and Minimum pool size](#) and [Change in pool size](#).

Range

0-2147483647

Default Value

32

Pool Idle Timeout

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.pool-idle-timeout-in-seconds`

Explanation

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. (Note 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.

Range

0-2147483647(Seconds)

Default Value

600

*EJB Timer service

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.ejb-timer-service`

Minimum delivery interval

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.ejb-timer-service.minimum-delivery-interval-in-millis`

Explanation

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.

Range

1-2147483647(milliseconds)

Default Value

7000

Maximum number of re-deliveries

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.ejb-timer-service.max-redeliveries`

Explanation

This is the maximum value for the number of EJB Timer deliveries. If callback processing does not succeed despite execution of the number of redeliveries specified in this setting, then the EJB timer service deletes the relevant EJB timer.

Range

1-2147483647(Times)

Default Value

1

Timer data source

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.ejb-timer-service.timer-datasource`

Explanation

This is the data source that is used by the EJB Timer service.

Range

String

Default Value

`jdbc/__TimerPool`

Re-delivery interval

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.ejb-timer-service.redelivery-interval-internal-in-millis`

Explanation

This is the redelivery interval for the EJB Timer.

Range

1-2147483647(milliseconds)

Default Value

5000

EJB Timer service additional property

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.ejb-timer-service.property.${PropertyName}`

Explanation

Cannot be used in this version.

Asynchronous Process Thread Maximum Pool Size

Definition Item Name

`${clusterName_instanceName_configName}.ejb-container.property.thread-core-pool-size`

Explanation

This is the maximum number of Session Bean asynchronous process threads to be pooled.

If there is a processing request when the number of threads being processed has reached the maximum pool size, a thread is not created, and the queue is put on standby until a thread is available.

Range

1-2147483647

Default Value

None

If the value is omitted with the `asadmin set` subcommand (specification of only the definition item name and "="), the system will operate as if 16 has been set.

Note 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:
Threshold value = Maximum cache size x 0.75 + 1
- If the change in cache size amount does not exceed the maximum cache size:
Threshold value = Maximum cache size - change in cache size amount + 1

Note 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).

Note 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.

Note 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.

7.7.9 Message-driven Bean Default Pool Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|--|-------------------------------|-------------------------|-----|-----|------|------------------|
| Enterprise Bean instance pooling | | | | | | |
| *Message-driven Bean default pool configuration | | | No | No | Yes | - |
| | Initial and Minimum pool size | steady-pool-size | Yes | Yes | No | Yes |
| | Change in pool size | pool-resize-quantity | Yes | Yes | No | Yes |
| | Maximum pool size | max-pool-size | Yes | Yes | No | Yes |
| | Idle Timeout | idle-timeout-in-seconds | Yes | Yes | No | Yes |
| | Additional property | Property name | Yes | Yes | No | |

***Message-driven Bean default pool configuration**

Definition Item Name

`${clusterName_instanceName_configName}.mdb-container`

Initial and Minimum pool size

Definition Item Name

`${clusterName_instanceName_configName}.mdb-container.steady-pool-size`

Explanation

This is the number of instances that will be secured in the pool.

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.

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.

Specify a value lower than the value specified in [Maximum pool size](#).

Range

0-2147483647

Default Value

0

Change in pool size

Definition Item Name

`${clusterName_instanceName_configName}.mdb-container.pool-resize-quantity`

Explanation

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 set, the default value is set.

Specify a value lower than the value specified in [Maximum pool size](#).

Range

0-2147483647

Default Value

8

Maximum pool size

Definition Item Name

`${clusterName_instanceName_configName}.mdb-container.max-pool-size`

Explanation

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 default value is set.

Specify a value higher than the value specified in [Initial and Minimum pool size](#) and also higher than the value specified in [Change in pool size](#).

Range

0-2147483647

Default Value

32

Idle Timeout

Definition Item Name

`${clusterName_instanceName_configName}.mdb-container.idle-timeout-in-seconds`

Explanation

This is the maximum tolerance idle time for instances in the pool.

The EJB container monitors the pool at the intervals in the set value and adjusts the pool size. **(Note)**

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.

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, the default value is set.

Range

1-2147483647(Seconds)

Default Value

600

Additional property

Definition Item Name

`${clusterName_instanceName_configName}.mdb-container.property.${PropertyName}`

Explanation

Cannot be used in this version.

Note)

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.

7.7.10 JMS Service Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|---------------------|----------------------|---------------|-----|-----|------|------------------|
| *JMS service | | | No | No | Yes | - |
| | type | type | Yes | Yes | No | Yes |
| *JMS host | | | No | No | Yes | - |
| | name | name | Yes | No | No | - |
| | host | host | Yes | Yes | No | Yes |
| | port | port | Yes | Yes | No | Yes |

*JMS service

Definition Item Name

`${clusterName_instanceName_configName}.jms-service`

type

Definition Item Name

`${clusterName_instanceName_configName}.jms-service.type`

Explanation

Specify the method of operating the message broker referenced by the Interstage Java EE 6 DAS service and IJServer cluster. "EMBEDDED" cannot be specified for IJServer cluster.

Range

- REMOTE
- EMBEDDED

Default Value

REMOTE

*JMS host

Definition Item Name

`${clusterName_instanceName_configName}.jms-service.jms-host.default_JMS_host`

name

Definition Item Name

`${clusterName_instanceName_configName}.jms-service.jms-host.default_JMS_host.name`

Explanation

The message broker host name referenced by the Interstage Java EE 6 DAS service and IJServer cluster will be displayed.

Default Value

default_JMS_host

host

Definition Item Name

`${clusterName_instanceName_configName}.jms-service.jms-host.default_JMS_host.host`

Explanation

Specify the operating host name of the message broker referenced by the Interstage Java EE 6 DAS service and IJServer cluster.

Range

String

Default Value

localhost

port

Definition Item Name

`${clusterName_instanceName_configName}.jms-service.jms-host.default_JMS_host.port`

Explanation

Specify the port number of the message broker which is referenced by the IJServer cluster or Interstage Java EE 6 DAS service.

Range

1-65535

Solaris32/64 Linux32/64

If "EMBEDDED" has been set as the JMS service type, and the Java EE application is operated with a general user username, ports 1 to 1024 cannot be used.

Default Value

17676

7.7.11 Logger Definition Items

Attributes that Allow Operation in the set-log-attributes Subcommand

| Item name | Attribute name | set-log-attributes | Restart required |
|-----------------------|----------------------|--------------------|------------------|
| Log output directory | directory | Yes | Yes |
| Rotation type | rotationPolicy | Yes | Yes |
| Log size | rotationLimitInBytes | Yes | Yes |
| Log collection time | rotationTime | Yes | Yes |
| Number of generations | maxHistoryFiles | Yes | Yes |
| Log handler | handlers | Yes | Yes |

Log output directory

Definition Item Name

com.sun.enterprise.server.logging.GFFileHandler.directory

Explanation

Specify the path of the server log output directory. Specify the full path.

Specify the path so that its length, including the file name (file name after rotation), is within the maximum value range for the OS.

If the beginning of the value that was specified is not \${com.sun.aas.instanceRoot}, the directory is created under the directory that was specified using the server instance name, and the log files are output under that directory.

If the top part of the specified value is not \${com.sun.aas.instanceRoot}, the log file output directory will not be deleted when the IJServer cluster and server instance are deleted. Delete the directory manually.

Range

String

Default Value

\${com.sun.aas.instanceRoot}/logs

Rotation type

Definition Item Name

com.sun.enterprise.server.logging.GFFileHandler.rotationPolicy

Explanation

To back up the server log, specify whether to execute the backup using the log size (logsize) or the log collection time (time).

Range

- logsize
- time

Default Value

logsize

Log size

Definition Item Name

com.sun.enterprise.server.logging.GFFileHandler.rotationLimitInBytes

Explanation

Specify the maximum size of the server log. The log file is rotated when the size that was specified is reached.

Range

1048576-536870912(Byte)

Default Value

1048576(Byte)

Log collection time

Definition Item Name

com.sun.enterprise.server.logging.GFFileHandler.rotationTime

Explanation

Specify the time at which the server log is rotated. Logs are rotated every day at the time that was specified.

Range

0-23(time)

Default Value

0(time)

Number of generations

Definition Item Name

com.sun.enterprise.server.logging.GFFileHandler.maxHistoryFiles

Explanation

Specify the number of generations that will be archived for the server 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.

Range

1-999

Default Value

1

Log handler

Definition Item Name

handlers

Explanation

Specify the handler used in log output. To specify multiple handlers, use a comma (",") delimiter.

Range

Optional handlers

Default Value

None

7.7.12 Security Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|------------------------------|------------------|---------------|-----|-----|------|------------------|
| *Security | | | No | No | Yes | - |
| | Default realm | default-realm | Yes | Yes | No | No |
| | JACC | jacc | Yes | No | No | - |
| *Realm | | | No | No | Yes | - |
| | Realm name | name | Yes | No | No | - |
| | Realm class name | classname | Yes | No | No | - |
| Additional property of Realm | | | | | | |
| | JAAS context | jaas-context | Yes | No | No | - |
| | Group assignment | assign-groups | Yes | Yes | No | Yes |
| | Keyfile | file | Yes | No | No | - |

*Security

Definition Item Name

`${clusterName_instanceName_configName}.security-service`

Default realm

Definition Item Name

`${clusterName_instanceName_configName}.security-service.default-realm`

Explanation

This is the realm used for authentication if a realm has not been specified in the deployment descriptor.

Range

Specify a defined realm name.

Default Value

file

JACC

Definition Item Name

`${clusterName_instanceName_configName}.security-service.jacc`

Explanation

This is the class name of the JACC provider that is set.

Default Value

default

*Realm

Definition Item Name

`${clusterName_instanceName_configName}.security-service.auth-realm.${name}`

Realm name

Definition Item Name

`${clusterName_instanceName_configName}.security-service.auth-realm.${name}.name`

Explanation

This is the realm name.

Range

If creating new realms with the `asadmin create-auth-realm` subcommand, configure the realm name with the following:

- Alphanumerics or special characters (`\', '-', '_', ':', '/', ';', '#`).
- Only alphanumerics or `'_'` can be specified as the start character.

Default Value

This definition item may not be omitted.

The following realms have been prepared beforehand for this product.

- `admin-realm`: Dedicated realm for use during `asadmin` command login authentication.
- `file`: File realm to be used with the Java EE 6 application

Realm class name

Definition Item Name

`${clusterName_instanceName_configName}.security-service.auth-realm.${name}.classname`

Explanation

This is the realm class name.

Range

If creating new file realms with the `asadmin create-auth-realm` subcommand, set the following values:

`com.sun.enterprise.security.auth.realm.file.FileRealm`

Default Value

This definition item may not be omitted.

When the file realm is used, you must specify `com.sun.enterprise.security.auth.realm.file.FileRealm`.

JAAS context

Definition Item Name

`${clusterName_instanceName_configName}.security-service.auth-realm.${name}.property.jaas-context`

Explanation

Specify the login module type used by the realm.

Range

Set the following value for the `--property` option when creating a new file realm with the `asadmin create-auth-realm` subcommand.
`fileRealm`

Default Value

This definition item may not be omitted. If you omitted the value with the `asadmin set` subcommand, and only specified the definition item name and "=", an error will occur.

"fileRealm" must be specified if you are using a file realm.

Group assignment

Definition Item Name

`${clusterName_instanceName_configName}.security-service.auth-realm.${name}.property.assign-groups`

Explanation

The group to be allocated is specified for all authenticated users. To specify multiple groups, use a comma (",") delimiter.

Range

Configure group names from the following characters, using more than from 1 to 255 characters.

- Alphanumeric
- _
- -
- .

To specify multiple groups, use a comma (",") delimiter.

Default Value

Groups which are assignable to all authenticated users do not exist.

If the value is omitted in the `asadmin set` subcommand (that is, if only the definition item name and "=" are specified), this definition item will be deleted, and groups assignable to all authenticated users will be deleted.

Keyfile

`${clusterName_instanceName_configName}.security-service.auth-realm.${name}.property.file`

Explanation

The complete path and name of the keyfile is specified.

Specify the file under `${com.sun.aas.instanceRoot}/config`.

Specify the keyfile with the `--property` option when creating a new file realm with the `asadmin create-auth-realm` subcommand.

Range

Paths beginning from `${com.sun.aas.instanceRoot}/config`

Default Value

The keyfiles for previously prepared realms in this product are as below:

admin-realm: `${com.sun.aas.instanceRoot}/config/admin-keyfile`

file: `${com.sun.aas.instanceRoot}/config/keyfile`

Note that if you are using the file realm, values specified by this definition item are mandatory.

7.7.13 Transaction Service Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|-----------------------------|---|---|-----|-----|------|------------------|
| *Transaction service | | | No | No | Yes | - |
| | On restart | automatic-recovery | Yes | Yes | No | Yes |
| | Transaction timeout | timeout-in-seconds | Yes | Yes | No | No |
| | Retry timeout | retry-timeout-in-seconds | Yes | Yes | No | No |
| | Transaction log location | tx-log-dir | Yes | Yes | No | Yes |
| | Key point interval | keypoint-interval | Yes | Yes | No | No |
| Additional property | | | Yes | Yes | No | Yes |
| | Disabling of the transaction log | disable-distributed-transaction-logging | Yes | Yes | No | Yes |
| | Transaction timeout set for XAResource | xaresource-txn-timeout | Yes | Yes | No | Yes |
| | Transaction log output destination JDBC resource name | db-logging-resource | Yes | Yes | No | Yes |
| | Use Last Agent Optimization | use-last-agent-optimization | Yes | Yes | No | Yes |
| | Use of multiple non-XA resources in the transaction | multi-nonXA-only-supported | Yes | Yes | No | Yes |

*Transaction service

Definition Item Name

`${clusterName_instanceName_configName}.transaction-service`

On restart

Definition Item Name

`${clusterName_instanceName_configName}.transaction-service.automatic-recovery`

Explanation

Specify whether to enable (true) or not enable (false) the process that recovers the in-doubt state and completes the transaction when the server starts. (**Note 1**)

"In-doubt state" is the state when transactions are incomplete due to either a server crash or resource manager crash.

Range

- true
- false

Default Value

false

Transaction timeout

Definition Item Name

`${clusterName_instanceName_configName}.transaction-service.timeout-in-seconds`

Explanation

Specify the time until the transaction is complete (in seconds). If the JJSERVER cluster does not complete a transaction within the set time, the transaction status is changed to "MarkedRollback".

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 (`glassfish-ejb-jar.xml`) to specify the timeout value for each Enterprise JavaBean.

Range

0-2147483647(Seconds)

Default Value

0

Retry timeout

Definition Item Name

`${clusterName_instanceName_configName}.transaction-service.retry-timeout-in-seconds`

Explanation

When a transaction spans multiple servers, the one that started it may 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 unable to access related resources even after the time specified in this parameter, the transaction is rolled back.

If 0 is specified, reconnection is not performed.

Range

0-2147483647(Seconds)

Default Value

600

Transaction log location

Definition Item Name

`${clusterName_instanceName_configName}.transaction-service.tx-log-dir`

Explanation

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 "server instance name/tx" subdirectory of the directory specified in this parameter. (the subdirectory will be 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 "[7.7.1 Properties Used when Creating and Updating Definitions](#)".

Range

String

Default Value

`${com.sun.aas.instanceRoot}/logs`

Key point interval

Definition Item Name

`${clusterName_instanceName_configName}.transaction-service.keypoint-interval`

Explanation

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.

Range

1-2147483647(Transaction number)

Default Value

65536

Disabling of the transaction log

Definition Item Name

`${clusterName_instanceName_configName}.transaction-service.property.disable-distributed-transaction-logging`

Explanation

If true is set for this property, the output of transaction logs is disabled. **(Note 2)**

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.

Range

- true
- false

Default Value

false

Transaction timeout set for XAResource

Definition Item Name

`${clusterName_instanceName_configName}.transaction-service.property.xaresource-txn-timeout`

Explanation

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.

Range

0-2147483647(Seconds)

(This will depend on the JDBC driver that is used, so check the JDBC driver specs.)

Default Value

This will depend on the JDBC driver that is used, so check the JDBC driver specs.

Transaction log output destination JDBC resource name

Definition Item Name

`${clusterName_instanceName_configName}.transaction-service.property.db-logging-resource`

Explanation

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. (Note 3)

Range

String

Default Value

None

Use Last Agent Optimization

Definition Item Name

`${clusterName_instanceName_configName}.transaction-service.property.use-last-agent-optimization`

Explanation

Whether to enable (true) or disable (false) the Use Last Agent Optimization is specified.

If true is set for this property, only one non-XA resource can be used when multiple resources are used in the transaction.

Range

- true
- false

Default Value

true

Use of multiple non-XA resources in the transaction

Definition Item Name

`${clusterName_instanceName_configName}.transaction-service.property.multi-nonXA-only-supported`

Explanation

Specify whether to enable (true) or not enable (false) multiple use of non-XA resources in the transaction.

If true is set for this property, multiple non-XA resources in the transaction can be accessed.

Range

- true
- false

Default Value

false

Additional property

Definition Item Name

`${clusterName_instanceName_configName}.transaction-service.property.${PropertyName}`

Explanation

It is possible to add property items in name/parameter pairs.

Range

- Property name
 - Alphanumerics, double-byte characters, or special characters ('-', '_', '!', '/', ':', '#')
 - The first character must be alphanumeric or double-byte.
- Property value

String

Default Value

None

Note 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, rolls back the transaction.

Note 2)

If the output of transaction logs is disabled, also disable the definition used in the restart.

Note 3)

The method to store transaction logs in the database is not supported in this version.

7.7.14 Java VM Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|------------------------------------|--|----------------------------|-----|-----|------|------------------|
| *JVM configuration | | | No | No | Yes | - |
| | Debug | debug-enabled | Yes | Yes | No | Yes |
| | Debug options | debug-options | Yes | Yes | No | Yes |
| | Javac options | javac-options | Yes | Yes | No | Yes |
| | Native library path suffix | native-library-path-suffix | Yes | Yes | No | Yes |
| | JVM options | jvm-options | Yes | No | No | - |

*JVM configuration

Definition Item Name

`${clusterName_instanceName_configName}.java-config`

Debug

Definition Item Name

`${clusterName_instanceName_configName}.java-config.debug-enabled`

Explanation

Whether to enable (true) or disable (false) the [Debug options](#) is specified.

Range

- true
- false

Default Value

false

Debug options

Definition Item Name

`${clusterName_instanceName_configName}.java-config.debug-options`

Explanation

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. [\(Note 1\)](#)

Range

String

A string that starts with '-' can be specified as an option.

Default Value

`"-Xdebug -Xrunjdp:transport=dt_socket,server=y,suspend=n,address=9009"`

Javac options

Definition Item Name

`${clusterName_instanceName_configName}.java-config.javac-options`

Explanation

When multiple options are specified, put all values specified in the option in double quotation marks (") and a half-width space () between each option. [\(Note 1\)](#)

Range

String

A string that starts with '-' can be specified as an option.

Default Value

`"-g"`

Native library path suffix

Definition Item Name

`${clusterName_instanceName_configName}.java-config.native-library-path-suffix`

Explanation

Entries that are added are specified at the end of the native library path. Native library paths are paths that have connected the following:

- Java EE 6 install directory/glassfish/lib
- Standard JRE native library path
- Shell environment settings (LD_LIBRARY_PATH in Solaris/Linux)

| Process start method | Environment variable |
|--|---|
| Interstage Java EE 6 DAS service (start with the start-domain subcommand) | Environment variable of the shell that executed the start-domain subcommand |
| Server instance (start with the start-cluster subcommand) | Environment variable of the shell that executed the start-domain subcommand |
| Server instance (start with the start-local-instance subcommand) | Environment variable of the shell that executed the start-local-instance subcommand |

- Native library path suffix

Use the following delimiters when specifying multiple paths: (Note 2)

- \${path.separator}
- ;(Windows(R))
- :(Solaris/Linux)

To add a native library path, change this item.

The value specified for this item will be valid as the java.library.path system property when the server instance starts. Depending on the native module that is used, however, the server instance may not run when only the path is defined for java.library.path. In such cases, also set the environment variable PATH(LD_LIBRARY_PATH) in the PCMI profile definition items. Refer to "7.1 PCMI Service Definition Items" for details on PCMI profile definition items.

Range

String

Default Value

None

JVM options

Definition Item Name

`${clusterName_instanceName_configName}.java-config.jvm-options`

Explanation

To specify multiple options, use a colon (":") delimiter. (Note 3)

The default configuration (default-config) JVM options should not be added, deleted, or modified. If IJServer cluster or Interstage Java EE 6 DAS service JVM options have been defined, they should not be deleted either. Modify the values which have been added or predefined. (Note 4)

Range

String between 1 and 4096 characters.
A string starting with '-' can be specified.

Default Value

None

Note 1)



Example

Specifying the command when multiple options are specified in the debug option

Windows32/64


```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set server.java-config.debug-options="-Xdebug -Xrunjwp:transport=dt_socket,server=y,suspend=n,address=9009"
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin set server.java-config.debug-options="-Xdebug -Xrunjwp:transport=dt_socket,server=y,suspend=n,address=9009"
```

Note 2)

Example

Example: Specifying multiple options in the native lib. path suffix

```
/opt/lib1${path.separator}/opt/lib2
```

Note 3)

Example

Specifying the command when multiple options are specified in the JVM option

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jvm-options -Xmx256m:-XX\:MaxPermSize=128m
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-jvm-options -Xmx256m:-XX\:MaxPermSize=128m
```

Note 4)

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:

Windows32/64

| | JVM option |
|----|--|
| 1 | -XX:MaxPermSize=192m |
| 2 | -XX:PermSize=64m |
| 3 | -Djava.awt.headless=true |
| 4 | -Djava.endorsed.dirs=\${com.sun.aas.installRoot}/modules/endorsed\${path.separator}\${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 | -Dcom.sun.enterprise.security.httpsOutboundKeyAlias=s1as |
| 8 | -Djavax.net.ssl.keyStore=\${com.sun.aas.instanceRoot}/config/keystore.jks |
| 9 | -Djavax.net.ssl.trustStore=\${com.sun.aas.instanceRoot}/config/cacerts.jks |
| 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 |
| 11 | -Djdbc.drivers=org.apache.derby.jdbc.ClientDriver |

| | JVM option |
|----|--|
| 12 | -DANTLR_USE_DIRECT_CLASS_LOADING=true |
| 13 | - Dcom.sun.enterprise.config.config_environment_factory_class=com.sun.enterprise.config.serverbeans.AppserverConfigEnvironmentFactory |
| 14 | -Dproduct.name= |
| 15 | -Xmx512m |
| 16 | -Dosgi.shell.telnet.port=\${OSGI_SHELL_TELNET_PORT} |
| 17 | -Dosgi.shell.telnet.maxconn=1 |
| 18 | -Dosgi.shell.telnet.ip=127.0.0.1 |
| 19 | -Dgosh.args=-noshutdown -c noop=true |
| 20 | -Dfelix.fileinstall.dir=\${com.sun.aas.installRoot}/modules/autostart/ |
| 21 | -Dfelix.fileinstall.poll=5000 |
| 22 | -Dfelix.fileinstall.log.level=3 |
| 23 | -Dfelix.fileinstall.bundles.new.start=true |
| 24 | -Dfelix.fileinstall.bundles.startTransient=true |
| 25 | -Dfelix.fileinstall.disableConfigSave=false |
| 26 | -Xrs |
| 27 | -Dsun.rmi.dgc.server.gcInterval=3600000 |
| 28 | -Dsun.rmi.dgc.client.gcInterval=3600000 |
| 29 | -Dcom.fujitsu.interstage.pcmi.instancePath=\${AS_JAVAEE6_SHARED_DIR}/pcmi/isje6 |
| 30 | -Dcom.fujitsu.interstage.javaee.web.accesslog.instance.default=false |
| 31 | - Dcom.fujitsu.interstage.javaee.web.coyoteadapter=com.fujitsu.interstage.javaee.web.connector.coyote.ISCoyoteAdapter |

Solaris32/64 Linux32/64

| | JVM option |
|----|--|
| 1 | -XX:MaxPermSize=192m |
| 2 | -XX:PermSize=64m |
| 3 | -Djava.awt.headless=true |
| 4 | -Djava.endorsed.dirs=\${com.sun.aas.installRoot}/modules/endorsed\${path.separator}\${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 | -Dcom.sun.enterprise.security.httpsOutboundKeyAlias=s1as |
| 8 | -Djavax.net.ssl.keyStore=\${com.sun.aas.instanceRoot}/config/keystore.jks |
| 9 | -Djavax.net.ssl.trustStore=\${com.sun.aas.instanceRoot}/config/cacerts.jks |
| 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 |
| 11 | -Djdbc.drivers=org.apache.derby.jdbc.ClientDriver |
| 12 | -DANTLR_USE_DIRECT_CLASS_LOADING=true |

| | JVM option |
|----|--|
| 13 | - Dcom.sun.enterprise.config.config_environment_factory_class=com.sun.enterprise.config.serverbeans.AppserverConfigEnvironmentFactory |
| 14 | -Dproduct.name= |
| 15 | -Xmx512m |
| 16 | -Dosgi.shell.telnet.port=\${OSGI_SHELL_TELNET_PORT} |
| 17 | -Dosgi.shell.telnet.maxconn=1 |
| 18 | -Dosgi.shell.telnet.ip=127.0.0.1 |
| 19 | -Dgosh.args=-noshutdown -c noop=true |
| 20 | -Dfelix.fileinstall.dir=\${com.sun.aas.installRoot}/modules/autostart/ |
| 21 | -Dfelix.fileinstall.poll=5000 |
| 22 | -Dfelix.fileinstall.log.level=3 |
| 23 | -Dfelix.fileinstall.bundles.new.start=true |
| 24 | -Dfelix.fileinstall.bundles.startTransient=true |
| 25 | -Dfelix.fileinstall.disableConfigSave=false |
| 26 | -Dsun.rmi.dgc.server.gcInterval=3600000 |
| 27 | -Dsun.rmi.dgc.client.gcInterval=3600000 |
| 28 | -Dcom.fujitsu.interstage.pcmi.instancePath=\${AS_JAVAAEE6_SHARED_DIR}/pcmi/isje6 |
| 29 | -Dcom.fujitsu.interstage.javaee.web.accesslog.instance.default=false |
| 30 | - Dcom.fujitsu.interstage.javaee.web.coyoteadapter=com.fujitsu.interstage.javaee.web.connector.coyote.ISCoyoteAdapter |

The JVM options defined in the configuration immediately after the Interstage Java EE 6 DAS service is installed (server-config) are as follows:

Windows32/64

| | JVM option |
|----|--|
| 1 | -XX:MaxPermSize=192m |
| 2 | -XX:PermSize=64m |
| 3 | -Djava.awt.headless=true |
| 4 | -Djavax.management.builder.initial=com.sun.enterprise.v3.admin.AppServerMBeanServerBuilder |
| 5 | -Djava.endorsed.dirs=\${com.sun.aas.installRoot}/modules/endorsed\${path.separator}\${com.sun.aas.installRoot}/lib/endorsed |
| 6 | -Djava.security.policy=\${com.sun.aas.instanceRoot}/config/server.policy |
| 7 | -Djava.security.auth.login.config=\${com.sun.aas.instanceRoot}/config/login.conf |
| 8 | -Dcom.sun.enterprise.security.httpsOutboundKeyAlias=s1as |
| 9 | -Xmx512m |
| 10 | -Djavax.net.ssl.keyStore=\${com.sun.aas.instanceRoot}/config/keystore.jks |
| 11 | -Djavax.net.ssl.trustStore=\${com.sun.aas.instanceRoot}/config/cacerts.jks |
| 12 | -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 |
| 13 | -Djdbc.drivers=org.apache.derby.jdbc.ClientDriver |

| | JVM option |
|----|--|
| 14 | -DANTLR_USE_DIRECT_CLASS_LOADING=true |
| 15 | - Dcom.sun.enterprise.config.config_environment_factory_class=com.sun.enterprise.config.serverbeans.AppserverConfigEnvironmentFactory |
| 16 | -Dproduct.name= |
| 17 | - Dorg.glassfish.additionalOSGiBundlesToStart=org.apache.felix.shell,org.apache.felix.gogo.runtime,org.apache.felix.gogo.shell,org.apache.felix.gogo.command,org.apache.felix.fileinstall |
| 18 | -Dosgi.shell.telnet.port=6666 |
| 19 | -Dosgi.shell.telnet.maxconn=1 |
| 20 | -Dosgi.shell.telnet.ip=127.0.0.1 |
| 21 | -Dgosh.args=-nointeractive |
| 22 | -Dfelix.fileinstall.dir=\${com.sun.aas.installRoot}/modules/autostart/ |
| 23 | -Dfelix.fileinstall.poll=5000 |
| 24 | -Dfelix.fileinstall.log.level=2 |
| 25 | -Dfelix.fileinstall.bundles.new.start=true |
| 26 | -Dfelix.fileinstall.bundles.startTransient=true |
| 27 | -Dfelix.fileinstall.disableConfigSave=false |
| 28 | -Xrs |
| 29 | -Dsun.rmi.dgc.server.gcInterval=3600000 |
| 30 | -Dsun.rmi.dgc.client.gcInterval=3600000 |
| 31 | -Dcom.fujitsu.interstage.javaee.config.disableJmsProviderPortReassignment=true |
| 32 | -Dcom.fujitsu.interstage.javaee.web.accesslog.instance.default=false |
| 33 | - Dcom.fujitsu.interstage.javaee.web.coyoteadapter=com.fujitsu.interstage.javaee.web.connector.coyote.ISCoyoteAdapter |
| 34 | -Dcom.fujitsu.interstage.pcmi.instancePath=\${AS_JAVAAE6_SHARED_DIR}/pcmi/isje6 |

Solaris32/64 Linux32/64

| | JVM option |
|----|---|
| 1 | -XX:MaxPermSize=192m |
| 2 | -XX:PermSize=64m |
| 3 | -Djava.awt.headless=true |
| 4 | -Djavax.management.builder.initial=com.sun.enterprise.v3.admin.AppServerMBeanServerBuilder |
| 5 | -Djava.endorsed.dirs=\${com.sun.aas.installRoot}/modules/endorsed\${path.separator}\${com.sun.aas.installRoot}/lib/endorsed |
| 6 | -Djava.security.policy=\${com.sun.aas.instanceRoot}/config/server.policy |
| 7 | -Djava.security.auth.login.config=\${com.sun.aas.instanceRoot}/config/login.conf |
| 8 | -Dcom.sun.enterprise.security.httpsOutboundKeyAlias=s1as |
| 9 | -Xmx512m |
| 10 | -Djavax.net.ssl.keyStore=\${com.sun.aas.instanceRoot}/config/keystore.jks |
| 11 | -Djavax.net.ssl.trustStore=\${com.sun.aas.instanceRoot}/config/cacerts.jks |

| | JVM option |
|----|--|
| 12 | -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 |
| 13 | -Djdbc.drivers=org.apache.derby.jdbc.ClientDriver |
| 14 | -DANTLR_USE_DIRECT_CLASS_LOADING=true |
| 15 | - Dcom.sun.enterprise.config.config_environment_factory_class=com.sun.enterprise.config.serverbeans.AppserverConfigEnvironmentFactory |
| 16 | -Dproduct.name= |
| 17 | - Dorg.glassfish.additionalOSGiBundlesToStart=org.apache.felix.shell,org.apache.felix.gogo.runtime,org.apache.felix.gogo.shell,org.apache.felix.gogo.command,org.apache.felix.fileinstall |
| 18 | -Dosgi.shell.telnet.port=6666 |
| 19 | -Dosgi.shell.telnet.maxconn=1 |
| 20 | -Dosgi.shell.telnet.ip=127.0.0.1 |
| 21 | -Dgosh.args=-nointeractive |
| 22 | -Dfelix.fileinstall.dir=\${com.sun.aas.installRoot}/modules/autostart/ |
| 23 | -Dfelix.fileinstall.poll=5000 |
| 24 | -Dfelix.fileinstall.log.level=2 |
| 25 | -Dfelix.fileinstall.bundles.new.start=true |
| 26 | -Dfelix.fileinstall.bundles.startTransient=true |
| 27 | -Dfelix.fileinstall.disableConfigSave=false |
| 28 | -Dsun.rmi.dgc.server.gcInterval=3600000 |
| 29 | -Dsun.rmi.dgc.client.gcInterval=3600000 |
| 30 | -Dcom.fujitsu.interstage.javaee.config.disableJmsProviderPortReassignment=true |
| 31 | -Dcom.fujitsu.interstage.javaee.web.accesslog.instance.default=false |
| 32 | - Dcom.fujitsu.interstage.javaee.web.coyoteadapter=com.fujitsu.interstage.javaee.web.connector.coyote.ISCoyoteAdapter |
| 33 | -Dcom.fujitsu.interstage.pcmi.instancePath=\${AS_JAVAAEE6_SHARED_DIR}/pcmi/isje6 |

7.7.15 Thread Pool Definition Items

Definition Items

| Category | Property | Property name | get | set | list | Restart required |
|-------------------------------|------------------------------|-----------------------------|-----|-----|------|------------------|
| *Thread pools | | | No | No | Yes | - |
| *Thread pool | | | No | No | Yes | - |
| | Idle timeout | idle-thread-timeout-seconds | Yes | Yes | No | No (Note 1) |
| | Queue size | max-queue-size | Yes | Yes | No | No (Note 1) |

| Category | Property | Property name | get | set | list | Restart required |
|----------|-------------------|----------------------|-----|-----|------|------------------|
| | Maximum pool size | max-thread-pool-size | Yes | Yes | No | No (Note 1) |
| | Minimum pool size | min-thread-pool-size | Yes | Yes | No | No (Note 1) |
| | Thread pool name | name | Yes | No | No | - |

Note 1)

When the definition item for the EJB container thread pool has been changed, you must restart.

***Thread pools**

Definition Item Name

`${clusterName_instanceName_configName}.thread-pools`

***Thread pool**

Definition Item Name

`${clusterName_instanceName_configName}.thread-pools.thread-pool.${thread-pool-name}`



Specify the following in `${thread-pool-name}`:

- Web container thread pool
 - http-thread-pool:HTTP listener/HTTPS listener
- EJB container thread pool
 - thread-pool-1: default thread pool
 - ID of thread pools created with the [create-threadpool subcommand](#): Thread pools created for each Enterprise Bean

Idle timeout

Definition Item Name

`${clusterName_instanceName_configName}.thread-pools.thread-pool.${thread-pool-name}.idle-thread-timeout-seconds`

Explanation

This is the maximum length of time threads in the pool can remain in an idle state (in seconds).

The thread is discarded if this period is exceeded. However, as the minimum value of the number of threads will continue to be pooled, it will not be subject to being discarded. Also, if processing stops, the threads will also be deleted.

Range

1-2147483647

Default Value

900

Queue size

Definition Item Name

`${clusterName_instanceName_configName}.thread-pools.thread-pool.${thread-pool-name}.max-queue-size`

Explanation

This is the size of the thread pool queue.

If there is a processing request, first put it into the thread pool queue, and the request will be processed when there are available threads.

If all the threads are in use, then it will be put on standby in the queue until a thread is available.

If there are processing requests that exceed the queue size, the portion of the requests that exceed the queue size do not queue in line, and will not be processed.



.....
This setting is invalid in the case of a thread pool for an EJB container.
.....

Range

1-2147483647

Default Value

- For http-thread-pool: 200

However, if the value is omitted in the asadmin set subcommand (that is, if only the definition item name and "=" are specified), the system operates as if 4096 has been set.

Maximum pool size

Definition Item Name

`${clusterName_instanceName_configName}.thread-pools.thread-pool.${thread-pool-name}.max-thread-pool-size`

Explanation

This is the maximum size of the thread pool.

If there is a processing request when the number of threads being processed has reached the maximum pool size, the queue is put on standby until a thread is available.

Specify a value higher than the value to be specified in [Minimum pool size](#).

Range

1-2147483647

Default Value

- http-thread-pool:64
- thread-pool-1:200

However, if the value is omitted in the asadmin set subcommand (that is, if only the definition item name and "=" are specified), the system operates as if 5 has been set.

Minimum pool size

Definition Item Name

`${clusterName_instanceName_configName}.thread-pools.thread-pool.${thread-pool-name}.min-thread-pool-size`

Explanation

This is the minimum size of the thread pool. Specify a value lower than the value to be specified in [Maximum pool size](#).

- For web container thread pools

Threads are not formed during process startup; they are created after receiving requests. If requests that exceed the minimum pool size are received simultaneously, the value of the thread number will exceed the minimum pool size. If the idle timeout period is exceeded after that, the number of threads is reduced to the minimum pool size.

- For EJB container thread pools

Minimum pool size threads are formed during process startup.

Range

1-2147483647

Default Value

- For http-thread-pool: 16
- For thread-pool-1: 2

However, if the value is omitted in the `asadmin set` subcommand (that is, if only the definition item name and "=" are specified), the definition item operates as if 2 has been set.

Thread pool name

Definition Item Name

`${clusterName_instanceName_configName}.thread-pools.thread-pool.${thread-pool-name}.name`

Explanation

This is the thread pool name.

Default Value

- http-thread-pool: HTTP listener/HTTPS listener
- thread-pool-1: default thread pool

However, values cannot be omitted in the `asadmin set` subcommand. An error will occur if only the definition item name and "=" are specified.

Chapter 8 Maintenance(Resource Backup / migration of Resources to Another Server)

Maintenance of the Java EE 6 application operating environment is explained in this chapter.

8.1 Backing Up and Restoring Resources

8.1.1 Resources that can be Backed Up and Restored

Backup and restore can be executed for the resources shown below.

- Java EE 6 resources
- Web Server Connector (for Interstage HTTP Server 2.2) resources



The log files are not backed up or restored.

8.1.1.1 Java EE 6 resources

Java EE 6 backup/restore target files are shown below.

- Files under the Java EE 6 common directory.

8.1.1.2 Web Server Connector (for Interstage HTTP Server 2.2) resources

Web Server Connector (for Interstage HTTP Server 2.2) target files are under the directories shown below.

Windows32/64

C:\Interstage\F3FMwsc\conf\jk2

Solaris32/64 Linux32/64

/etc/opt/FJSVwsc/conf/jk2

8.1.2 Backup Procedure

Back up the resources according to the following procedure.

1. Stopping Services
2. Backup Command

8.1.2.1 Stopping Services

Before backing up, stop the following services.

For details on the various commands, refer to "[Chapter 9 Java EE 6 Operation Commands](#)".

IJServer cluster

Stop the IJServer cluster using the asadmin command stop-cluster subcommand.

Interstage Java EE 6 DAS service

Stop the Interstage Java EE 6 DAS service using the asadmin command stop-domain subcommand.

PCMI service

Stop the PCMI service from the Windows(R) Services window or using an RC script, etc. For details, refer to "4.2.3 Stopping".

Message broker

When the message broker operating in REMOTE mode is running, stop it using the imqcmd command shutdown bkr subcommand.

Java DB

Stop the Java DB using the asadmin command stop-database subcommand.

8.1.2.2 Backup Command



Note

Back up the backup target service resources shown in the isprintbackupsrsc command.

Java EE 6 resources

Backup Command

The Java EE 6 resources are backed up using the following command.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\ij6backup
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/ij6backup
```

Example

Windows32/64

In the following example, the backup destination path is X:\Backup.

```
C:\Interstage\F3FMisje6\glassfish\bin\ij6backup -d X:\Backup
```

Solaris32/64 Linux32/64

In the following example, the backup destination path is /backup.

```
/opt/FJSVisje6/glassfish/bin/ij6backup -d /backup
```

Web Server Connector (for Interstage HTTP Server 2.2) resources

Backup Command

Web Server Connector (for Interstage HTTP Server 2.2) resources are backed up using the following command.

Windows32/64

```
C:\Interstage\F3FMwsc\bin\wscbackup
```

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscbackup
```

Example

Windows32/64

In the following example, the backup destination path is X:\Backup.

```
C:\Interstage\F3FMwsc\bin\wscbackup -d X:\Backup
```

Solaris32/64 Linux32/64

In the following example, the backup destination path is /backup.

```
/opt/FJSVwsc/bin/wscbackup -d /backup
```

8.1.3 Restore Procedure

Restore the resources according to the following procedure.

1. Stopping Services
2. Restore Command
3. Tasks that Follow the Restore of the Java EE 6 Resources

8.1.3.1 Stopping Services

Stop the services. Refer to "[8.1.2.1 Stopping Services](#)".

8.1.3.2 Restore Command



Restore the backup target service resources shown in the isprintbackuprsc command.

Java EE 6 resources

Restore Command

Restore the Java EE 6 resources using the following command.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\ij6restore
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/ij6restore
```

Example

Windows32/64

In the following example, the backup destination path is X:\Backup.

```
C:\Interstage\F3FMisje6\glassfish\bin\ij6restore -d X:\Backup
```

Solaris32/64 Linux32/64

In the following example, the backup destination path is /backup.

```
/opt/FJSVisje6/glassfish/bin/ij6restore -d /backup
```

Note

If there are Java EE 6 resources in the restore destination, they are deleted before restore is performed. For this reason, log files that are not backup targets are deleted after restore is performed.

Web Server Connector (for Interstage HTTP Server 2.2) resources

Restore Command

Restore the Web Server Connector (for Interstage HTTP Server 2.2) resources using the following command.

Windows32/64

```
C:\Interstage\F3FMwsc\bin\wscrestore
```

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscrestore
```

Example

Windows32/64

In the following example, the backup destination path is X:\Backup.

```
C:\Interstage\F3FMwsc\bin\wscrestore -d X:\Backup
```

Solaris32/64 Linux32/64

In the following example, the backup destination path is /backup.

```
/opt/FJSVwsc/bin/wscrestore -d /backup
```

8.1.3.3 Tasks that Follow the Restore of the Java EE 6 Resources

Perform the following tasks after the Java EE 6 resources have been restored.

Security Privileges Settings **Solaris32/64 Linux32/64**

Execute the `issetsecuritymode` command to configure the settings for security privileges. Also, execute the `ij6setoperatorid` command to set the service operator user. For details on the `issetsecuritymode` command, refer to "issetsecuritymode" in the Reference Manual (Command Edition); for details on the `ij6setoperatorid` command, refer to "9.4 [ij6setoperatorid](#)".

Repository Synchronization

For the IJServer cluster, synchronize the repository in the import/restore target according to the procedure shown below.

1. Start the Interstage Java EE 6 DAS service.
2. Start the IJServer cluster.

8.2 Moving Resources to Another Server(export/import)

This section explains copying (moving) the resources to another server.

1. Exporting resources from the server machine
2. Importing resources to the server machine
3. Tasks After the Resources are Imported

8.2.1 Resources

Resources that can be migrated are the same as those for backup and restore. Refer to "[8.1.1 Resources that can be Backed Up and Restored](#)" for details.

8.2.2 Export Procedure

The procedure for migrating resources to another server which is performed on the source server is the same as the procedure for backing up resources on the same machine. Refer to "[8.1.2 Backup Procedure](#)" for details.

8.2.3 Import Procedure

Import the resources according to the following procedure.

1. Stopping services
2. Restore command
3. Tasks After the Resources are Imported

8.2.3.1 Stopping Services

Stop the services. Refer to "[8.1.2.1 Stopping Services](#)".

8.2.3.2 Restore Command

Import the Java EE 6 resources according to the following procedure.

Java EE 6 Resources

Restore Command

Import the Java EE 6 resources using the following command.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\ij6restore
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/ij6restore
```

When the host name and the IP address of the source and destination machines are different, specify the host name of the import destination with the -h option and specify the configuration file that includes the IP address/host name with the -f option.

For details on the ij6restore command, refer to "[9.11 ij6restore](#)".

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\F3FMisje6\glassfish\bin\ij6restore -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/FJSVisje6/glassfish/bin/ij6restore -d /backup -h host -f /ipaddress.txt
```

Note

- Restore the backup target service resources shown in the isprintbackuprsc command.
- If an IP address is specified as the HTTP listener network address, this IP address will be reflected in the Web Server Connector (for Interstage HTTP Server 2.2) resources. Convert the IP address using the -h option when importing the web server connector resources.
- To import Java EE 6 resources using the ij6restore 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 Java EE 6 resources already exist at the destination, the existing resources will be automatically deleted and then import is performed. For this reason, the log files for resources that are not export targets are deleted when the Java EE 6 resources are imported.
- If the Java EE 6 resources are stored in a location other than under the "Java EE 6 common directory", the ij6restore command does not import them. Move the resources to the same path used on export.

Web Server Connector (for Interstage HTTP Server 2.2) resources

The procedure to restore Web Server Connector (for Interstage HTTP Server 2.2) resources is the same as the procedure for restoring resources on the same machine. Refer to "8.1.3 Restore Procedure".

However, you must convert the IP address in the following situations:

- If it is a standalone server, and
- If operating the web server and the IJServer cluster on different machines, and
- If the IP address for the web container and web server are different at the import source and import destination

Perform the task below to replace the IP address that is used on the actual import destination.

- During execution of the wscrestore command, specify the -h option and convert the IP address. For details, refer to "9.16 wscrestore".

8.2.3.3 Tasks After the Resources are Imported

After the resources are imported, perform the following tasks if necessary.

1. Tasks to perform before starting the Java EE 6 service

2. Start the Interstage Java EE 6 DAS service.
3. Tasks to perform after starting the Interstage Java EE 6 DAS Service
4. Repository synchronization

Tasks to Perform Before Starting the Java EE 6 Service

Security Privileges Settings [Solaris32/64](#) [Linux32/64](#)

Execute the `issetsecuritymode` command and configure the settings for security privileges. Also, execute the `ij6setoperatorid` command to set the service operator user. For details on the `issetsecuritymode` command, refer to "issetsecuritymode" in the Reference Manual (Command Edition); for details on the `ij6setoperatorid` command, refer to "[9.4 ij6setoperatorid](#)".

Reissuing Certificates

When the host name has been modified, you must change the CN of the certificate to the host name of the import destination for any of the following certificates used in operation management:

- `slas`
- `glassfish-instance`

Refer to "[5.2.9 Encrypted Communication for Operation Management Operations](#)" for details on changing the CN.

Similarly, when using a CA certificate, you must change the CN of the certificate to the host name of the import destination.

Refer to "[5.3.3.4 Settings for the Certificate Signed by the CA](#)" for details on changing the CN.

After reissuing the certificate, refer to "Note" in "[2.1.4 Repository Synchronization](#)", and update the `domain.xml` `datetime` to the current time so that synchronization processing will be performed.

Administrator User Migration

If you import into a machine that is not the export source, you may need to migrate the Administrator user. If you have executed the `asadmin login` subcommand in the export source environment, and the login information has been saved in the `.asadminpass` file, migrate the Administrator user by executing the following:

- `asadmin command login subcommand`

Refer to "[5.2.6 Registering the Administrator User](#)", "[5.2.7 Specifying the Administrator User](#)", "[9.1.3.1 login Subcommand](#)", for details on Administrator users.

Migrating `sun-acc.xml`

If you have changed the IP address or host name of the connected server machine that is using a Java EE application client, change information of the server machine defined in the `target-server` element of `sun-acc.xml`.

Refer to "[4.9.1 Setting the Java EE Application Client Environment](#)" for details on Java EE application client environment settings.

Tasks to Perform after Starting the Interstage Java EE 6 DAS Service

Setting the IP Address/host Name of the Machine that is Connected to the Java EE 6

If the IP address/host name of the machine (such as the DB server machine) that is connected to the Java EE 6 was changed, change the Java EE 6 environment settings according to the following procedure:

1. Start Interstage Java EE 6 DAS service
Start Interstage Java EE 6 DAS service using the `asadmin start-domain` subcommand.
2. Set the Java EE 6 environment
The Java EE 6 environment settings are changed using the `asadmin` command.

Reconfiguring the Virtual Host of the Web Server that Receives Requests

If you change the IP address or host name of the virtual host when you import Interstage HTTP Server 2.2 resources, reconfigure the virtual host of the web server that receives requests with the following procedure

After importing the Web Server Connector (for Interstage HTTP Server 2.2) resources, execute using the following procedures:

When Running a Web Server and a Web Container on the Same Machine

1. Start Interstage Java EE 6 DAS service
Start Interstage Java EE 6 DAS service using the `asadmin start-domain` subcommand.
2. Reconfigure the virtual host of the web server that receives requests
Use the `asadmin delete-virtual-host-ref` and `create-virtual-host-ref` subcommands to reconfigure as below. For details on the various commands, refer to "[9.1.10.5 delete-virtual-host-ref Subcommand](#)" and "[9.1.10.4 create-virtual-host-ref Subcommand](#)".

Example: If the IJServer cluster is IJServer001, the web server is web001, and the virtual host is as follows:

- Old virtual host: IP address=192.0.2.1, port number=80, host name=virtualhost1
- New virtual host: IP address=192.0.2.2, port number=80, host name=virtualhost2

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-virtual-host-ref --target IJServer001 --webserver web001 192.0.2.1:80/virtualhost1
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-virtual-host-ref --target IJServer001 --webserver web001 192.0.2.2:80/virtualhost2
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-virtual-host-ref --target IJServer001 --webserver web001 192.0.2.1:80/virtualhost1
/opt/FJSVisje6/glassfish/bin/asadmin create-virtual-host-ref --target IJServer001 --webserver web001 192.0.2.2:80/virtualhost2
```

When Running a Web Server and a Web Container on Different machines

1. When running on another machine, use the `wscadmin delete-virtual-host-ref` and `add-virtual-host-ref` subcommands, to reconfigure as below. For details on the various commands, refer to "[9.14.12 delete-virtual-host-ref Subcommand](#)" and "[9.14.11 add-virtual-host-ref Subcommand](#)".

Example: When the IJServer cluster is IJServer001, web server is web001, and the virtual host is as follows:

- Old virtual host: IP address=192.0.2.1, port number=80, host name=virtualhost1
- New virtual host: IP address=192.0.2.2, port number=80, host name=virtualhost2

Windows32/64

```
C:\Interstage\F3FMwsc\bin\wscadmin delete-virtual-host-ref --target IJServer001 --webserver web001 192.0.2.1:80/virtualhost1
C:\Interstage\F3FMwsc\bin\wscadmin add-virtual-host-ref --target IJServer001 --webserver web001 192.0.2.2:80/virtualhost2
```

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin delete-virtual-host-ref --target IJServer001 --webserver web001 192.0.2.1:80/virtualhost1
/opt/FJSVwsc/bin/wscadmin add-virtual-host-ref --target IJServer001 --webserver web001 192.0.2.2:80/virtualhost2
```


Repository Synchronization

For the IJServer cluster, synchronize the repository in the import/restore target according to the procedure shown below.




1. Start the Interstage Java EE 6 DAS service.
2. Start the IJServer cluster.

Chapter 9 Java EE 6 Operation Commands

This chapter explains the commands used for Java EE 6 operations.

List of commands


The table below outlines the commands in this chapter.

| Command | Description | SJE | EE |
|--|---|-----|----|
| asadmin | Integrated command for the Java EE 6 runtime environment. | Y | Y |
| appclient | Starts the application client container and executes the Java EE application client. | Y | Y |
| ij6setoperatorid   | Sets the service operator user. | Y | Y |
| imqbrokerd | Creates and removes the message broker material and starts the message broker. | Y | Y |
| imqcmd | Manages the message broker. | Y | Y |
| imqsvcadmin  | Registers and deletes the message broker. | Y | Y |
| imqusermgr | Manages the user information that can be connected to the message broker. | Y | Y |
| ijwsimport | Creates necessary resources for the JAX-WS service from the WSDL file. | Y | Y |
| ij6backup | Backs up and exports Java EE 6 resources. | Y | Y |
| ij6restore | Restores and imports Java EE 6 resources. | Y | Y |
| pcmistat | Displays the status of the PCMI service. | Y | Y |
| pcmilistprocesses | Displays the status of the processes being monitored by the PCMI service. | Y | Y |
| wscadmin | Manages web server connectors. | Y | Y |
| wscbackup | Backs up and exports the Web Server Connector (for Interstage HTTP Server 2.2) resources. | Y | Y |
| wscrestore | Restores and imports the Web Server Connector (for Interstage HTTP Server 2.2) resources. | Y | Y |

Y: Can be used; N: Cannot be used

Location of commands

The table below lists the storage destinations of the commands explained in this chapter (it assumes this product has been installed in the default installation directory).

| Platform | Command | Directory |
|---|-----------------------------|---------------------------------------|
|  | asadmin | C:\Interstage\F3FMisje6\glassfish\bin |
| | appclient | |
| | imqbrokerd | C:\Interstage\F3FMisje6\mq\bin |
| | imqcmd | |
| | imqsvcadmin | |
| | imqusermgr | |

| Platform | Command | Directory |
|---------------------|-----------------------------------|---------------------------------------|
| | ijwsimport | C:\Interstage\F3FMisje6\glassfish\bin |
| | ij6backup | C:\Interstage\F3FMisje6\glassfish\bin |
| | ij6restore | |
| | pcmistat | C:\Interstage\F3FMpcmi\bin |
| | pcmilistprocesses | |
| | wscadmin | C:\Interstage\F3FMwsc\bin |
| | wscbackup | |
| | wscrestore | |
| Solaris32/64 | asadmin | /opt/FJSVisje6/glassfish/bin |
| Linux32/64 | appclient | |
| | ij6setoperatorid | |
| | imqbrokerd | /opt/FJSVisje6/mq/bin |
| | imqcmd | |
| | imqusermgr | |
| | ijwsimport | /opt/FJSVisje6/glassfish/bin |
| | ij6backup | /opt/FJSVisje6/glassfish/bin |
| | ij6restore | |
| | pcmistat | /opt/FJSVpcmi/bin |
| | pcmilistprocesses | |
| | wscadmin | /opt/FJSVwsc/bin |
| | wscbackup | |
| | wscrestore | |

Note

Some commands have the same name in Java EE 6 and Java EE 5. Additionally, the supported subcommands of the Java EE 5 admin command and the Java EE 6 asadmin command may be different. The behavior of an unsupported subcommand cannot be guaranteed.

To distinguish between Java EE 6 and Java EE 5 commands, it is necessary to specify the absolute path to execute the Java EE 6 command.

Method to indicate the commands

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.

Specifying a string that contains spaces

When specifying a string that contains spaces, for example as a command option value or operand, it must be enclosed in double quotation marks (").

9.1 asadmin

The asadmin command is the integrated command for the Java EE 6 runtime environment. It is used to construct the Java EE 6 runtime environment and perform operations after the system started.



When the asadmin subcommand is executed, it is sometimes possible to set a value outside the supported range in the option or operand. Refer to the range defined in "Chapter 8 List of Definition Items" and the range in the option or operand in this chapter, and specify the option and operand values.

This explains the following.

- [Command execution privileges](#)
- [Login authentication when the command is used](#)
- [Command structure](#)
- [Setting the command process Java VM option](#)
- [Options](#)
- [Operands](#)
- [Specifying the target](#)
- [Specifying the user and password](#)
- [Separators](#)
- [Using escape characters](#)
- [Specifying a character string including a space](#)
- [Maximum length of the input character string](#)
- [Notes on the asadmin command](#)

Command execution privileges Solaris32/64 Linux32/64

Only Interstage operator group users can execute this command.

For details on the Interstage operator group, refer to "[5.2.2 Java EE 6 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 "[5.2.7.1 Login Authentication for the asadmin Command](#)".

Command structure

The asadmin command consists of multiple subcommands. Each subcommand corresponds to a Java EE 6 runtime environment operation. The option that can be specified differs by each subcommand.

When the command is executed, the common option, subcommand, subcommand option, and operand are specified as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin <common option> <subcommand> <subcommand option>
<operand>
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin <common option> <subcommand> <subcommand option> <operand>
```

Note

Java EE 6 runtime environment operation is performed via the Interstage Java EE 6 DAS service. Therefore, with the exception of some of the subcommands, the Interstage Java EE 6 DAS service must be started when the asadmin command is executed.

Setting the command process Java VM 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

Windows32/64

```
set VMARGS=-option
C:\Interstage\F3FMisje6\glassfish\bin\asadmin --port=12011 list
Unrecognized option: -option
Could not create the Java virtual machine.
```

Solaris32/64 Linux32/64

```
set VMARGS=-option
/opt/FJSVisje6/glassfish/bin/asadmin --port=12011 list
Unrecognized option: -option
Could not create the Java virtual machine.
```

When illegal spaces are specified

Windows32/64

```
set VMARGS=option1 option2
C:\Interstage\F3FMisje6\glassfish\bin\asadmin --port=12011 list
Exception in thread "main" java.lang.NoClassDefFoundError: option1
```

Solaris32/64 Linux32/64

```
set VMARGS=option1 option2
/opt/FJSVisje6/glassfish/bin/asadmin --port=12011 list
Exception in thread "main" java.lang.NoClassDefFoundError: option1
```

Options

The format of the asadmin command option is that two hyphens are placed before the keyword, as in "--user".

Specifying the value

The method used to specify the value is explained below.

| Option type | How to specify the value | Example |
|---|---|------------------------------|
| Option in which a string/numeric is specified | Specify by separating the option and value with a space or with "=". (*1) | --user admin --port=12011 |

*1 When an option value that starts with a hyphen ("-") is specified, separate the option name and value using "=".

Omitting a 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.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin deploy --enabled=true
```

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin deploy --enabled
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin deploy --enabled=true
```

```
/opt/FJSVisje6/glassfish/bin/asadmin deploy --enabled
```

If a mandatory option was omitted, you will be asked to enter it.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jdbc-resource test
```

```
Enter the value for the connectionpoolid option> DerbyPool
```

```
JDBC resource test created successfully.
```

```
Command create-jdbc-resource executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-jdbc-resource test
```

```
Enter the value for the connectionpoolid option> DerbyPool
```

```
JDBC resource test created successfully.
```

```
Command create-jdbc-resource executed successfully.
```

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.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin -p=12011 list-components
```

Solaris32/64 Linux32/64

```
/opt/FJSSVisje6/glassfish/bin/asadmin -p=12011 list-components
```

Specifying multiple options

If multiple options are specified simultaneously, they are separated with a space. An error will if the same option is specified more than once.

For instance, in the following case, the command will end after an error message is displayed.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin --port=12011 --port=12011 list-domains
```

```
Repeats not allowed for option: port
~Omitted~
Command list-domains failed.
```

Solaris32/64 Linux32/64

```
/opt/FJSSVisje6/glassfish/bin/asadmin --port=12011 --port=12011 list-domains
```

```
Repeats not allowed for option: port
~Omitted~
Command list-domains failed.
```

Specifying an invalid option

If an invalid option is specified when the command is executed, a subcommand error message is displayed, and the command is terminates. For details on the valid options, refer to each subcommand in "[9.1.1 List of Subcommands of the asadmin Command](#)".

Operands

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. For details on the valid operands, refer to each subcommand in "[9.1.1 List of Subcommands of the asadmin Command](#)".

If a mandatory operand was omitted, you will be asked to enter it.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jdbc-resource --connectionpoolid DerbyPool
```

```
Enter the value for the jndi_name operand> test
```

```
JDBC resource test created successfully.
```

```
Command create-jdbc-resource executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSSVisje6/glassfish/bin/asadmin create-jdbc-resource --connectionpoolid DerbyPool
```

```
Enter the value for the jndi_name operand> test
```

```
JDBC resource test created successfully.
```

```
Command create-jdbc-resource executed successfully.
```

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 that can be specified | Description |
|-----------------------------|--|
| IJServer cluster name | Executes operations for the prebuilt IJServer cluster. |
| Server instance name | Executes operations for the prebuilt server instance. |
| Configuration name | Executes operations for the prebuilt Interstage Java EE 6 DAS service configuration or IJServer cluster configuration. The Interstage Java EE 6 DAS service configuration name is "server-config". The IJServer cluster configuration name is "IJServer cluster name-config". |
| server | Executes operations for the Interstage Java EE 6 DAS service. ("server" is the Interstage Java EE 6 DAS service instance name.) |
| domain | Executes operations for the domain (Java EE 6 operating environment). <ul style="list-style-type: none"> - Creating resources Creates resources that are not referenced from any IJServer cluster. - Displaying lists Displays all resources created in the Java EE 6 operating environment. |

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 6 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.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin login
Enter admin user name [default: admin]> admin
Enter admin password>
~Omitted~
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin login
Enter admin user name [default: admin]> admin
Enter admin password>
~Omitted~
```

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.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin --user admin --passwordfile passwordfile.txt list-domains
domain1 running
Command list-domains executed successfully.
```


Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin --user admin --passwordfile passwordfile.txt list-domains
domain1 running
Command list-domains 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 "9.1.3.1 login Subcommand".

For details on the --user option and --passwordfile option, refer to "9.1.2 asadmin Command Common Options".



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 login subcommand of the asadmin command, the login user and password entries of the Interstage Java EE 6 DAS service can be omitted when the asadmin command is executed. For details, refer to "9.1.3.1 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.

For details, refer to each subcommand.

Using escape characters

If the following characters are used in the command option or the operand value, "\" must be specified as the escape character.



There are characters that cannot be specified as operands (definition names) of the get/set/list subcommands. Some characters cannot be specified in the get/set/list subcommand operand (definition item name). For details on the ones that can, refer to "9.1.4 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 character. | ;&() ><?*?[]~+-@!"'\\${ }^ (*1) |
| Java escape sequence | Characters used as escape character in Java. | \, " |
| asadmin command separation character | Separation character of the asadmin command. | : |
| asadmin command special characters | Special characters used as escape character in the following subcommands: - get - set - list | .-:= |

| Character types | Description | Characters |
|-----------------|---|------------|
| | <ul style="list-style-type: none"> - create-jvm-options - delete-jvm-options - create-jdbc-connection-pool | |

*1 Depending on the type of shell being used, characters treated as Solaris/Linux meta-characters are different. The Bourne Shell and C Shell meta-characters (Solaris/Linux) 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 |
|] | | |
| ~ | | |
| + | | - |
| - | | - |
| @ | | - |
| ! | Y | Y |
| " | Y | Y |
| ' | Y | Y |
| \ | Y | Y |
| ^ | Y | Y |
| \$ | Y | Y |
| { | - | Y |
| } | - | |
| ^ | - | |

- : Not considered a meta-character by the shell



Example

Examples where escape characters are used

Examples of command execution are shown below.

Example 1: Java escape sequence

If "c:\foo\bar" is specified in the option value, the escape character is used as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jvm-options -Dlocation=c:\\foo\\bar
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-jvm-options -Dlocation=c:\\\\foo\\\\bar
```

Example 2: 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

```
C:\Interstage\F3FMisje6\glassfish\bin\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

```
/opt/FJSVisje6/glassfish/bin/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
```

Example 3: When the asadmin command's separation character, Solaris/Linux meta-characters and Java escape sequence are mixed

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jvm-options -e\;-Dlocation=c:\\foo\\bar
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-jvm-options -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 UNIX meta-character

Second "\": escaping of Java escape sequence

Third "\": escaping of UNIX 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.

Example 4: Special characters of the asadmin command (get/set/list subcommand)

If a character string including a full stop as in "sample.name" is specified in the key name using the [get/set/list](#), the escape character is used as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set applications.application.appName.property.sample
.name=samplevalue
C:\Interstage\F3FMisje6\glassfish\bin\asadmin get applications.application.appName.property.sample.name
```

Solaris32/64 Linux32/64

```
/opt/FJJSVisje6/glassfish/bin/asadmin set testserver.property.sample\\.name=samplevalue
/opt/FJJSVisje6/glassfish/bin/asadmin get testserver.property.sample\\.name
```

Example 5: 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

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jvm-options \-Dlocation=c:\\foo\\bar (*1)
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-jvm-options \-Dlocation=c:\\foo\\bar
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jvm-options \-Xmx512m (*2)
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-jvm-options \-Xmx512m
```

Solaris32/64 Linux32/64

```
/opt/FJJSVisje6/glassfish/bin/asadmin create-jvm-options \\-Dlocation=c\\:\\\\foo\\\\\\bar (*1)
/opt/FJJSVisje6/glassfish/bin/asadmin delete-jvm-options \\-Dlocation=c\\:\\\\foo\\\\\\bar
/opt/FJJSVisje6/glassfish/bin/asadmin create-jvm-options \\-Xmx512m (*2)
/opt/FJJSVisje6/glassfish/bin/asadmin delete-jvm-options \\-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

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jvm-options -Dlocation=c:\\foo\\bar
```

Solaris32/64 Linux32/64

```
/opt/FJJSVisje6/glassfish/bin/asadmin create-jvm-options -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.

Specifying a character string including a space

Windows32/64

To specify "sample password.txt" in the "--passwordfile" option in the list-domains subcommand, execute as follows:

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin --passwordfile "sample password.txt" list-domains
```

Solaris32/64 Linux32/64

A character string that includes a space in the command option cannot be specified on the command line.



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 |
|--|---|
| 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) |

Notes on the asadmin command

- When using the asadmin subcommand to update definitions, the subcommand execution result for each synchronization target server instance may be output, regardless of the server instance startup status and regardless of whether the "target" option is specified.

Subcommand execution result

If the synchronization target server instance is running when the subcommand is executed, the following message will be output:

Server instance name:

Command execution result

If the synchronization target server instance is not running when the subcommand is executed and the server instance has been started at least once, the message shown below will be output. Synchronization will occur the next time the server instance is started, so no action is required.

WARNING: Instance <server instance name> seems to be offline; command <command name> was not replicated to that instance



Note

- If the synchronization target server instance is not running when the subcommand is executed and the server instance has never been started, no message will be output. Synchronization will occur the next time the server instance is started, so no action is required.
- For some subcommands, the message may not be output even if the above cases apply.

Synchronization targets

The synchronization target will depend on the subcommand type. Possible synchronization targets are shown below. For details on synchronization targets, refer to "Notes" of each subcommand.

- All Java EE 6 environment server instances
- Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster
- Do not perform concurrent asadmin command operations.
- The behavior cannot be guaranteed if you press Ctrl+C in the asadmin command execution window.

9.1.1 List of Subcommands of the asadmin Command

This is the list of the subcommands of the asadmin command.

| Category | Target operation | Operations | Subcommand name | SJE | EE |
|---------------------------------------|---|----------------|--|-------------------------------------|----|
| Common | - | - | login | Y | Y |
| Referencing/Updating definition items | Definition items | Display | get | Y | Y |
| | | Settings | set | Y | Y |
| | | List | list | Y | Y |
| Configuration file verification | Configuration file | Verify | verify-domain-xml | Y | Y |
| Domain operations | Domain | Start | start-domain | Y | Y |
| | | List | list-domains | Y | Y |
| | | Stop | stop-domain | Y | Y |
| IIServer cluster operations | IIServer cluster | Create | create-cluster | Y | Y |
| | | Delete | delete-cluster | Y | Y |
| | | Start | start-cluster | Y | Y |
| | | Stop | stop-cluster | Y | Y |
| | | List | list-clusters | Y | Y |
| | Server instance | Create | create-local-instance | Y | Y |
| | | Delete | delete-local-instance | Y | Y |
| | | Start | start-local-instance | Y | Y |
| | | Stop | stop-local-instance | Y | Y |
| | | List | list-instances | Y | Y |
| Application | Application | Show status | show-component-status | Y | Y |
| | | List | list-components | Y | Y |
| | | List | list-sub-components | Y | Y |
| | | Deploy | deploy | Y | Y |
| | | Get the stub | get-client-stubs | Y | Y |
| | | Undeploy | undeploy | Y | Y |
| | | - | enable | Y | Y |
| | | - | disable | Y | Y |
| Web server linkage | Web server linkage | Create linkage | create-web-server-ref | Y | Y |
| | | Remove linkage | delete-web-server-ref | Y | Y |
| | | List | list-web-server-refs | Y | Y |
| | Virtual host | Add | create-virtual-host-ref | Y | Y |
| | | Exclude | delete-virtual-host-ref | Y | Y |
| | | List | list-virtual-host-refs | Y | Y |
| | Web server connector environment settings | Update | update-web-server-connector-config | Y | Y |
| | | Display | show-web-server-connector-config | Y | Y |
| | Listener | IIOp listener | List | list-iiop-listeners | Y |
| Threadpool | Threadpool | Create | create-threadpool | Y | Y |

| Category | Target operation | Operations | Subcommand name | SJE | EE |
|-------------|---|------------|--|-----|----|
| | | Delete | delete-threadpool | Y | Y |
| | | List | list-threadpools | Y | Y |
| Transaction | Transaction | Freeze | freeze-transaction-service | Y | Y |
| | | Unfreeze | unfreeze-transaction-service | Y | Y |
| | | Recover | recover-transactions | Y | Y |
| | | Rollback | rollback-transaction | Y | Y |
| Resource | JDBC connection pool | Create | create-jdbc-connection-pool | Y | Y |
| | | Delete | delete-jdbc-connection-pool | Y | Y |
| | | List | list-jdbc-connection-pools | Y | Y |
| | | Ping | ping-connection-pool | Y | Y |
| | JDBC resource | Create | create-jdbc-resource | Y | Y |
| | | Delete | delete-jdbc-resource | Y | Y |
| | | List | list-jdbc-resources | Y | Y |
| | JMS resource | Create | create-jms-resource | Y | Y |
| | | Delete | delete-jms-resource | Y | Y |
| | | List | list-jms-resources | Y | Y |
| | JNDI resource | Create | create-jndi-resource | Y | Y |
| | | Delete | delete-jndi-resource | Y | Y |
| | | List | list-jndi-resources | Y | Y |
| | | Browse | list-jndi-entries | Y | Y |
| | JavaMail session | Create | create-javamail-resource | Y | Y |
| | | Delete | delete-javamail-resource | Y | Y |
| | | List | list-javamail-resources | Y | Y |
| | Custom resource | Create | create-custom-resource | Y | Y |
| | | Delete | delete-custom-resource | Y | Y |
| | | List | list-custom-resources | Y | Y |
| | Connector connection pool | Create | create-connector-connection-pool | Y | Y |
| | | Delete | delete-connector-connection-pool | Y | Y |
| | | List | list-connector-connection-pools | Y | Y |
| | Connector resource | Create | create-connector-resource | Y | Y |
| | | Delete | delete-connector-resource | Y | Y |
| | | List | list-connector-resources | Y | Y |
| | Admin object resource | Create | create-admin-object | Y | Y |
| | | Delete | delete-admin-object | Y | Y |
| | | List | list-admin-objects | Y | Y |
| | Resource adapter definition information | Create | create-resource-adapter-config | Y | Y |

| Category | Target operation | Operations | Subcommand name | SJE | EE |
|-------------------------------|-------------------------------|------------|--|-----|----|
| | | Delete | delete-resource-adapter-config | Y | Y |
| | | List | list-resource-adapter-configs | Y | Y |
| | Resource reference | Create | create-resource-ref | Y | Y |
| | | Delete | delete-resource-ref | Y | Y |
| | | Display | list-resource-refs | Y | Y |
| Lifecycle module | Lifecycle module | Create | create-lifecycle-module | Y | Y |
| | | Delete | delete-lifecycle-module | Y | Y |
| | | List | list-lifecycle-modules | Y | Y |
| System properties/JVM options | System property | Create | create-system-properties | Y | Y |
| | | Delete | delete-system-property | Y | Y |
| | | List | list-system-properties | Y | Y |
| | JVM option | Create | create-jvm-options | Y | Y |
| | | Delete | delete-jvm-options | Y | Y |
| | | List | list-jvm-options | Y | Y |
| Security | file realm administrator user | Modify | change-admin-password | Y | Y |
| | Master password | Change | change-master-password | Y | Y |
| | Security management | Enable | enable-secure-admin | Y | Y |
| | | Disable | disable-secure-admin | Y | Y |
| | Security map | Create | create-connector-security-map | Y | Y |
| | | Delete | delete-connector-security-map | Y | Y |
| | | Update | update-connector-security-map | Y | Y |
| | | List | list-connector-security-maps | Y | Y |
| | Password alias | Create | create-password-alias | Y | Y |
| | | Delete | delete-password-alias | Y | Y |
| | | List | list-password-aliases | Y | Y |
| | | Update | update-password-alias | Y | Y |
| | Realm | Create | create-auth-realm | Y | Y |
| | | Delete | delete-auth-realm | Y | Y |
| | | List | list-auth-realms | Y | Y |
| | file realm user | Create | create-file-user | Y | Y |
| | | Delete | delete-file-user | Y | Y |
| | | Update | update-file-user | Y | Y |
| | | List | list-file-users | Y | Y |
| | file realm group | List | list-file-groups | Y | Y |
| Database operation | Java DB | Start | start-database | Y | Y |
| | | Stop | stop-database | Y | Y |

| Category | Target operation | Operations | Subcommand name | SJE | EE |
|----------|------------------|-----------------------|---------------------------------------|-----|----|
| Log | Log definition | Set log attributes | set-log-attributes | Y | Y |
| | | Delete log attributes | delete-log-attributes | Y | Y |
| | | List log attributes | list-log-attributes | Y | Y |
| | | Log level settings | set-log-levels | Y | Y |
| | | Delete log levels | delete-log-levels | Y | Y |
| | | List log levels | list-log-levels | Y | Y |

Y: Can be used; N: Cannot be used

9.1.2 asadmin Command Common Options

The following options are common options in the asadmin command

| Option name | Mnemonic name | Description |
|----------------|---------------|--|
| --port | -p | Specify the connection target port. |
| --user | -u | Specify the user ID of the Interstage Java EE 6 DAS service admin. |
| --passwordfile | -W | Specify the name of the file that stores the password entry. |

Each option is explained below.

--port

Specify the port number for the Interstage Java EE 6 DAS service HTTP listener for operation management. If this option is omitted, the default value "12011" will be used.

--user

Specify the user ID of the Interstage Java EE 6 DAS service admin.

If this option is omitted, the default value "admin" may be used, or a prompt asking for the input of the admin user ID may be displayed, when the command is executed. If the admin user ID is requested, enter the default admin user ID "admin".

--passwordfile

Specify the name of the file that stores the password entry.

"AS_ADMIN_PASSWORD" is used to specify the Interstage Java EE 6 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 admin user ID.

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

Windows32/64

The character that can be used as a separator of the password file path is "/" or "\". An example is shown below.

C:/password.txt

9.1.3 Subcommands - Category: Common

9.1.3.1 login Subcommand

Synopsis

login [--pcmi[=true|=false]]

Description

Logs in to the Interstage Java EE 6 DAS service.

If this command is executed, the login information for the Interstage Java EE 6 DAS service is stored in a file.

For details on the Interstage Java EE 6 DAS service administrator user ID and administrator password, refer to ["5.2.6 Registering the Administrator User"](#).

For details on the usage and points to be noted on the asadmin command, refer also to ["9.1 asadmin"](#).

For details on the common options, refer to ["9.1.2 asadmin Command Common Options"](#).

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --pcmi | None | <ul style="list-style-type: none">- When "false" is specified or this option is omitted The Interstage Java EE 6 DAS service administrator user ID and administrator password may be omitted when the asadmin command is executed subsequently. The login information is saved in the following file: <pre>[user's home directory]\.asadminpass</pre> If the above file is deleted, there will be a query for the administrator user ID and the administrator password the next time the command is executed.- When "true" is specified If automatic restart of the server instance process is enabled, the login information that would be used by the PCMI service will be created. The login information is saved in the following file: <pre>[PCMI instance directory]\adapter\.asadminpass</pre> Execute this command to update the login information in the following cases:<ul style="list-style-type: none">- Administrator user ID and administrator password have been changed- Operation management HTTP listener port number has been changed To change the operation management HTTP listener port number, delete the above file manually and then execute this command. <p>Solaris32/64 Linux32/64</p> |

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| | | If the service operator user has been changed using the <code>ij6setoperatorid</code> command, execute this command as the new service operator user. |

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.
- if the `.asadminpass` file that has been created is not handled correctly, it will be a factor in reduced security. For this reason, note the following:
 - The `.asadminpass` file access permissions should not be changed manually.
 - The `.asadminpass` file should not be moved or copied to a directory that can be referenced by users, except the user who executes the `login` subcommand.
- Multiple instances of this subcommand should not be executed concurrently. Additionally, other subcommands should not be executed at the same time as this subcommand.

Example

A query is made as shown below.

Enter the Interstage Java EE 6 DAS service admin user ID and administrator password according to the query.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin login
Enter admin user name [default: admin]> admin
Enter admin password>
Admin login information for host [localhost] and port [12011]
~Omitted~
Command login executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin login
Enter admin user name [default: admin]> admin
Enter admin password>
Admin login information for host [localhost] and port [12011]
~Omitted~
Command login executed successfully.
```

9.1.4 Subcommands - Category: Referencing/Updating Definition Items

Referencing and updating defined values is performed from the command line using the `get/set/list` subcommand. For details on definition items, refer to "[Chapter 7 List of Definition Items](#)".

Characters that can be specified in the definition item name

The following characters can be specified in the definition item name:

- Lowercase: abcdefghijklmnopqrstuvwxyz
- Uppercase: ABCDEFGHIJKLMNOPQRSTUVWXYZ

- Numbers: 0123456789
- Symbols: (){}[];<>@\${}_-./

Note

Hyphens (-) and underscores (_) are treated as being the same.

Values that can be specified for Boolean type definitions

"true" and "false" can be specified for Boolean type definitions.

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.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list server.*
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list server.*
```

In this case, an asterisk functions as a wildcard.

To display the elements below the specified category, specify ".*" at the end.

For instance, all categories under server are displayed in the example below:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list server.*
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list server.*
```

To display all categories and subcategories, specify ".*.*" at the end.

For instance, all properties under server are displayed in the example below:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin get server.*
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin get server.*
```

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.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list *
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list *
```

To specify categories and properties that include a period in their names, specify "\" as escape character.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set server.http-service.property.dot\.sample=value
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin set server.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 the Interstage Java EE 6 DAS service/setting name

To reference/update the definitions under the Interstage Java EE 6 DAS service/setting name, specify as shown below.

- When the operation target is "Interstage Java EE 6 DAS service"

Specify the name of the Interstage Java EE 6 DAS service to reference/update the definitions.

Windows32/64

Example) C:\Interstage\F3FMisje6\glassfish\bin\asadmin get **server**.java-config.debug-enabled

Solaris32/64 Linux32/64

Example) /opt/FJSVisje6/glassfish/bin/asadmin get **server**.java-config.debug-enabled

- When the operation target is "setting name"

Specify the setting name to reference/update the definitions.

Windows32/64

Example) C:\Interstage\F3FMisje6\glassfish\bin\asadmin get **server-config**.java-config.debug-enabled

Solaris32/64 Linux32/64

Example) /opt/FJSVisje6/glassfish/bin/asadmin get **server-config**.java-config.debug-enabled

How to specify the server instance/IJServer cluster/setting name

To reference/update the definitions under server instance/IJServer cluster/setting name, specify as shown below.

- When the operation target is "server instance"

Specify the name of the server instance to reference/update the definitions.

Windows32/64

Example) C:\Interstage\F3FMisje6\glassfish\bin\asadmin get **Server001**.java-config.debug-enabled

Solaris32/64 Linux32/64

Example) /opt/FJSVisje6/glassfish/bin/asadmin get **Server001**.java-config.debug-enabled

- When the operation target is "IJServer cluster"

Specify the name of the IJServer cluster to reference/update the definitions.

Windows32/64

Example) C:\Interstage\F3FMisje6\glassfish\bin\asadmin get **IJServer001**.java-config.debug-enabled

Solaris32/64 Linux32/64

Example) /opt/FJSVisje6/glassfish/bin/asadmin get **IJServer001**.java-config.debug-enabled

- When the operation target is "setting name"

Specify the setting name to reference/update the items.

Windows32/64

Example) C:\Interstage\F3FMisje6\glassfish\bin\asadmin get **IJServer001-config**.java-config.debug-enabled

Solaris32/64 Linux32/64

Example) /opt/FJSVisje6/glassfish/bin/asadmin get **IJServer001-config**.java-config.debug-enabled

9.1.4.1 get Subcommand

Synopsis

get [--monitor] property_name

Description


Displays the specified [Definition Items](#) or transaction information.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

The output details for when the transaction information was displayed after specifying the --monitor option are displayed in the following table.

| Item number | Item name | Meaning | Description |
|-------------|-----------------|-----------------------------|--|
| (1) | Transaction Id | Transaction ID | The transaction ID is displayed. |
| (2) | Status | Transaction status | The transaction statuses that are displayed are as follows: <ul style="list-style-type: none">- Active The transaction is active- MarkedRollback The rollback is marked- Prepared The preparation phase is complete- UnKnown The status is unknown- Preparing The preparation phase is in progress- Committing The transaction is being committed- RollingBack Rollback is in progress |
| (3) | ElapsedTime(ms) | Elapsed time (milliseconds) | The time which has elapsed since the transaction was started is displayed in milliseconds. |
| (4) | ComponentName | Component name | The class name is displayed using the full package name, according to the component type that started the transaction. <ul style="list-style-type: none">- EJB EJB Bean class- Servlet Servlet class- JSP "org.apache.jasper.servlet.JspServlet" |

| Item number | Item name | Meaning | Description |
|-------------|---------------|---------------|---|
| | | |  Note In EJB 3.0, if the application that started the transaction does not implement java.io.Serializable using stateful session beans, the component name is output in the format "package name._class name_Serializable". |
| (5) | ResourceNames | Resource name | The name of the resource which joins the transaction is displayed. |

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --monitor | None | Specify this option to list the information about transactions that are running. If this option was specified, specify the following for the property_name operand: <code>\${clusterName_instanceName}.transaction-service.activevds-current</code> |

Operands

| Operand name | Omission | Description |
|---------------|--------------|--|
| property_name | Not possible | Specify the definition items that you want to display the value of. For details on the characters that can be used in the definition item name, refer to " 9.1.4 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](#)".
- If "*" is specified in property_name, an unsupported definition may be output.
- To display the transaction information after specifying the --monitor option, the transaction monitoring function settings must be enabled. Use the asadmin command set subcommand to set `${clusterName_instanceName_configName}.monitoring-service.module-monitoring-levels.transaction-service` to "HIGH".

Example

To display the value of the debug-enabled definition, execute as follows:

```
Windows32/64
```

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin get server-config.java-config.debug-enabled
server-config.java-config.debug-enabled=false
Command get executed successfully.
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/bin/asadmin get server-config.java-config.debug-enabled
server-config.java-config.debug-enabled=false
Command get executed successfully.
```

As shown below, an asterisk can also be used as part of the definition item name.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin get servers.server.*
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/bin/asadmin get servers.server.*
```

An example of the execution result when the transaction information is displayed after specifying the --monitor option is as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin get --monitor instance1.transaction-service.activeids-current
instance1:
instance1.transaction-service.activeids-current =
Transaction Id Status ElapsedTime(ms) ComponentName ResourceNames
0000000000000008_00 Active 19156 com.fujitsu.jccc.cbm.EmployeeCBMImpl jdbc/EmpRS
Command get executed successfully.
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/bin/asadmin get --monitor instance1.transaction-service.activeids-current
instance1:
instance1.transaction-service.activeids-current =
Transaction Id Status ElapsedTime(ms) ComponentName ResourceNames
0000000000000008_00 Active 16025 com.fujitsu.jccc.cbm.EmployeeCBMImpl jdbc/EmpRS
Command get executed successfully.
```

An example of the execution result when the results list is empty is as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin get --monitor instance1.transaction-service.activeids-current
instance1:
instance1.transaction-service.activeids-current =
Command get executed successfully.
```



```
/opt/FJSVisje6/glassfish/bin/asadmin get --monitor instance1.transaction-service.activeids-current
instance1:
instance1.transaction-service.activeids-current =
Command get executed successfully.
```

9.1.4.2 set Subcommand

Synopsis

```
set property_name=value[ property_name=value]...
```

Description

Sets the specified [definition items](#).

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Operands

| Operand name | Omission | Description |
|---------------------|--------------|--|
| property_name=value | Not possible | Specify the definition item name and value, separated by "=". (Note) Separate by a space if more than one is specified. For details on the characters that can be used in the definition item name, refer to " 9.1.4 Subcommands - Category: Referencing/Updating Definition Items ", " Characters that can be specified in the definition item name ". Double-byte characters cannot be specified. |

Note: 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. |
| A definition item for which the value can be omitted | The default value is set. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- When the additional property value is set, there is no check for the value range of the specified value. Any property name/value can be specified. If an invalid property is set, the property will be ignored.
- If the message shown below is output when the command is executed, the item shown in "definition item name" cannot be set for each IJServer cluster. This value must be modified by directly specifying the resource or application that is referenced from the IJServer cluster.

The attribute "definition item name" can only be modified at the domain level **(Note)**.

This should not be set as "IJServer cluster name.XXX.YYY", but as "XXX.YYY", as follows:

```
> asadmin set XXX.YYY
```

Note) The domain level is a valid definition in all IJServer clusters. An example is as follows:

```
applications.web-module.admingui.object-type
```

- 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](#)".
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

To set the value of the debug-enabled definition, execute as follows:

```
Windows32/64
```

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set server.java-config.debug-enabled=true
```

```
Solaris32/64 Linux32/64
```

```
/opt/FJSVisje6/glassfish/bin/asadmin set server.java-config.debug-enabled=true
```

For items that can be omitted, the default value can be used by omitting the value, and just specifying the item name followed by "=":

```
Windows32/64
```

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set server.ejb-container.max-pool-size=
```

```
Solaris32/64 Linux32/64
```

```
/opt/FJSVisje6/glassfish/bin/asadmin set server.ejb-container.max-pool-size=
```

To specify more than one definition item, specify the definition items as follows:

```
Windows32/64
```

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set resources.jdbc-connection-pool.DerbyPool.allow-non-component-callers=false resources.jdbc-resource.jdbc/___default.enabled=true
```

```
Solaris32/64 Linux32/64
```

```
/opt/FJSVisje6/glassfish/bin/asadmin set resources.jdbc-connection-pool.DerbyPool.allow-non-component-callers=false resources.jdbc-resource.jdbc/___default.enabled=true
```

9.1.4.3 list Subcommand

Synopsis

```
list category_name
```

Description

Shows a category list.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Operands

| Operand name | Omission | Description |
|---------------|--------------|---|
| category_name | Not possible | Specify the parent category that you want to display. For details on the characters that can be used in the category (definition item name), refer to "9.1.4 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 resources.jdbc-resource, execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list resources.jdbc-resource
resources.jdbc-resource.jdbc/__TimerPool
resources.jdbc-resource.jdbc/__default
Command list executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVIsje6/glassfish/bin/asadmin list resources.jdbc-resource
resources.jdbc-resource.jdbc/__TimerPool
resources.jdbc-resource.jdbc/__default
Command list executed successfully.
```

9.1.5 Subcommands - Category: Configuration File Verification

9.1.5.1 verify-domain-xml Subcommand

Synopsis

verify-domain-xml

Description

Verifies the Interstage Java EE 6 DAS service configuration file. The storage location of the configuration file is as follows:

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\config\domain.xml
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/config/domain.xml
```

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

If there was a verification error, the command ends abnormally and "1" is returned.

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin verify-domain-xml
All tests passed; domain.xml is valid.
Command verify-domain-xml executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin verify-domain-xml
All tests passed; domain.xml is valid.
Command verify-domain-xml executed successfully.
```

9.1.6 Subcommands - Category: Domain Operations

9.1.6.1 start-domain Subcommand

Synopsis

```
start-domain [--debug={true|false}][domain-name]
```

Description

Starts the Interstage Java EE 6 DAS service.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --debug | None | This starts the Interstage Java EE 6 DAS service Java VM debug. The default value is "false". |

Operands

| Operand name | Omission | Description |
|--------------|----------|---|
| domain-name | Possible | Specify the domain name of the Interstage Java EE 6 DAS service that is to be started. When this is omitted, domain1 will be specified. Only domain1 can be specified for this operand. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

This subcommand returns without waiting for the start processing of the Interstage Java EE 6 DAS service to complete. Use the "[9.13 pcmilistprocesses](#)" command to check if the start processing of the Interstage Java EE 6 DAS service has completed.

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin start-domain domain1
Waiting for domain1 to start .....
Successfully started the domain : domain1
domain Location: C:\Interstage\F3FMisje6\var\domains\domain1
Log File: C:\Interstage\F3FMisje6\var\domains\domain1\logs\server.log
Admin Port: 12011
Command start-domain executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin start-domain domain1
Waiting for domain1 to start .....
Successfully started the domain : domain1
domain Location: /var/opt/FJSVisje6/domains/domain1
Log File: /var/opt/FJSVisje6/domains/domain1/logs/server.log
Admin Port: 12011
Command start-domain executed successfully.
```

9.1.6.2 list-domains Subcommand

Synopsis

list-domains

Description

Displays the operational status of the Interstage Java EE 6 DAS service.

The operational statuses of the Interstage Java EE 6 DAS service are as follows:

| Content | Meaning |
|-------------|-----------------------------|
| running | The service is running. |
| not running | The service is not running. |

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- The "starting" and "stopping" statuses cannot be obtained. Either the "running" or the "not running" status will be obtained, depending on the timing.
- If the Interstage Java EE 6 DAS service has stopped responding, the list-domains subcommand may not return. If this happens, recover the process (for details, refer to "[Interstage Java EE 6 DAS Service Process Recovery Procedure](#)").

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-domains
domain1 running
Command list-domains executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-domains
domain1 running
Command list-domains executed successfully.
```

9.1.6.3 stop-domain Subcommand

Synopsis

```
stop-domain [--force[=true|=false]] [domain-name]
```

Description

Stops the Interstage Java EE 6 DAS service.

There are two methods used to stop the Interstage Java EE 6 DAS service: "normal stop" and "forced stop". In the case of forced stop, the behavior is as follows:

- 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.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --force | None | <ul style="list-style-type: none">- When "true" is specified The Interstage Java EE 6 DAS service is stopped by force.- When "false" is specified, or this option is omitted The Interstage Java EE 6 DAS service is stopped normally. |

Operands

| Operand name | Omission | Description |
|--------------|----------|--|
| domain-name | Possible | Specify the domain name of the Interstage Java EE 6 DAS service that is to be stopped. |

| Operand name | Omission | Description |
|--------------|----------|--|
| | | When this is omitted, domain1 will be specified. Only domain1 can be specified for this operand. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- If the process has stopped responding, the attempt to stop the Interstage Java EE 6 DAS service may fail. If this happens, recover the process (for details, refer to "[Interstage Java EE 6 DAS Service Process Recovery Procedure](#)").
- This subcommand returns without waiting for the stop processing of the Interstage Java EE 6 DAS service to complete. Use the "[9.13 pcmilistprocesses](#)" command to check if the stop processing of the Interstage Java EE 6 DAS service has completed.

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin stop-domain domain1
Waiting for the domain to stop ...
Command stop-domain executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin stop-domain domain1
Waiting for the domain to stop ...
Command stop-domain executed successfully.
```

9.1.7 Subcommands - Category: IJServer Cluster Operation

9.1.7.1 create-cluster Subcommand

Synopsis

```
create-cluster [--systemproperties name=value[:name=value]...] cluster_name
```

Description

Creates the IJServer cluster.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|--------------------|---------------|---|
| --systemproperties | None | Specify the system properties for the IJServer cluster. |

Operands

| Operand name | Omission | Description |
|--------------|--------------|--|
| cluster_name | Not possible | Specify the IJServer cluster name. A string consisting of alphanumeric characters and underscores ("_") from 1 to 28 bytes can be used for the IJServer cluster name. |

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.
Windows32/64
If an IJServer cluster with the same name is created unintentionally because case-sensitivity does not apply, the existing IJServer cluster and the IJServer cluster that was created may behave unpredictably. In this case, immediately delete the existing IJServer cluster and the IJServer cluster that was created.
- 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
- Double-byte characters, and "_" as the first or last character, cannot be used.
- An IJServer cluster of the following name cannot be created:
 - domain
 - default
 - server
 - resources

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-cluster IJServer001
Command create-cluster executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-cluster IJServer001
Command create-cluster executed successfully.
```

9.1.7.2 delete-cluster Subcommand

Synopsis

```
delete-cluster cluster_name
```

Description

Deletes the IJServer cluster.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 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.
- Before executing this command, delete the server instance that belongs to the IJServer cluster using the [delete-local-instance subcommand](#). If there are server instances that belong to the IJServer cluster, the IJServer cluster cannot be deleted.
- If files under `${com.sun.aas.instanceRoot}` are locked when this command is executed, the files may survive.
- If the directory locations shown below are changed except those under `${com.sun.aas.instanceRoot}`, the directory will not be deleted even if this command is executed. Delete the directory manually.
 - Log output directory
For details on the log output directory, refer to "Log File Directory" that is explained for each log in "4.17 Java EE Application Logs".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-cluster IJServer001  
Command delete-cluster executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-cluster IJServer001  
Command delete-cluster executed successfully.
```

9.1.7.3 start-cluster Subcommand

Synopsis

```
start-cluster cluster_name
```

Description

Starts the IJServer cluster.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 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

- 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.
- This subcommand returns without waiting for the start processing of the IJServer cluster server instance to complete. Use the ["pcmilistprocesses"](#) command to check if the start processing of the IJServer cluster server instance has completed.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to ["Notes on the asadmin command"](#).

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin start-cluster IJServer001
Command start-cluster executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin start-cluster IJServer001
Command start-cluster executed successfully.
```

9.1.7.4 stop-cluster Subcommand

Synopsis

```
stop-cluster cluster_name
```

Description

Stops the IJServer cluster.

This subcommand terminates the cluster after all server instances have stopped. If any of the server instances exceed the maximum wait time, the subcommand waits until all these server instances are forcibly stopped.

For details on the usage and points to be noted on the asadmin command, refer also to ["9.1 asadmin"](#).

For details on the common options, refer to ["9.1.2 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

Note

This subcommand returns without waiting for the start processing of the IJServer cluster server instance to complete. Use the "[pcmilstprocesses](#)" command to check if the start processing of the IJServer cluster server instance has completed.

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin stop-cluster IJServer001  
Command stop-cluster executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FISVisje6/glassfish/bin/asadmin stop-cluster IJServer001  
Command stop-cluster executed successfully.
```

9.1.7.5 list-clusters Subcommand

Synopsis

list-clusters [target]

Description

Shows a list of IJServer clusters and their operating status.
The operating status is shown using the following character string.


| Displayed contents | Meaning |
|--------------------|--------------------------|
| running | Running status |
| not running | Stopping status |
| partially running | Partially running status |

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Operands

| Operand name | Omission | Description |
|--------------|----------|---|
| target | Possible | Specify the domain, the IJServer cluster name, and the server instance name. If the domain is specified, all IJServer cluster names are displayed. The same applies if this operand is omitted. If the server instance name is specified, the name of the IJServer cluster that the server instance belongs to is displayed. If the IJServer cluster name is specified, information about the specified IJServer cluster is displayed. |

| Operand name | Omission | Description |
|--------------|----------|--|
| | |  Note <hr style="border-top: 1px dotted orange;"/> <p>Interstage Java EE 6 DAS service server instances (server) cannot be specified.</p> <hr style="border-top: 1px dotted orange;"/> <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

If this command is executed, for example, while the start or stop processing of the IJServer cluster server instance is in progress, or while the system is in a high-load state, the operating status that is displayed and the startup status of each server instance may not match. To check the correct server instance startup status, refer to "[9.13 pcmilistprocesses](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-clusters
IJServer001      running
IJServer002      running
IJServer003      not running
Command list-clusters executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-clusters
IJServer001      running
IJServer002      running
IJServer003      not running
Command list-clusters executed successfully.
```

9.1.7.6 create-local-instance Subcommand

Synopsis

create-local-instance [--systemproperties name=value[:name=value]...] --cluster cluster_name instance_name

Description

Creates the server instance.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|--------------------|---------------|--|
| --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 a string from 1 to 28 bytes for the server instance name. Alphanumerics, underscores ("_"), and hyphens ("-") can be used. However, underscores ("_"), and hyphens ("-") cannot be used as the first or last character. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- When creating server instances in a state where an IJServer cluster, for which a large volume of server instances has already been created, is defined, the processing to create the server instances may take a long time.
- A server instance name that already exists cannot be specified. Additionally, case-sensitivity does not apply, therefore if "instance1" already exists, for example, "INSTANCE1" cannot be specified.

Windows32/64

If a server instance with the same name is created unintentionally because case-sensitivity does not apply, the existing server instance and the server instance that was created may behave unpredictably. In this case, refer to "[11.3.1 Operating Environment-Related Errors](#)" - "[Server Instances with the Same Name That Is Not Case-Sensitive have been Created](#)" in "[Chapter 11 Troubleshooting](#)", and immediately delete the existing server instance and the server instance that was created.

- The following strings cannot be used for the server instance name:
 - domain
 - default
 - localhost-domain1
 - server
 - resources
- If the application is deployed after the server instance is added, the deployment processing may fail. Restart the Interstage Java EE 6 DAS service.
- **Windows32/64**
DOS device names cannot be used for the server instance name.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - All server instances belonging to the IJServer cluster specified in "cluster-name"

For this reason, the execution result for all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

- In the following case, the settings for linkage with the web server are configured automatically:
 - On a machine with only one web server with the web server connector environment, a server instance is created for an IJServer cluster that does not have any server instances

When linking with the web server, the "webservice" setting is configured for "Operation mode for access to the web container" automatically. For this reason, requests that do not use a web server will be declined. To allow requests that do not use a web server, configure the "nocheck" setting for "Operation mode for access to the web container". For details, refer to the network configuration definition item "[Operation mode for access to the web container](#)".

Example

Execute as follows:

If the default request reception ports are used by another IJServer cluster, new port numbers are automatically assigned when the command is executed.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-local-instance --cluster IJServer001 instance1
Rendezvoused with DAS on localhost:12011.
Port Assignments for server instance instance1:
JMX_SYSTEM_CONNECTOR_PORT=28696
HTTP_LISTENER_PORT=28292
ASADMIN_LISTENER_PORT=24858
JAVA_DEBUGGER_PORT=29009
IOP_SSL_LISTENER_PORT=29820
IOP_LISTENER_PORT=29700
OSGI_SHELL_TELNET_PORT=26666
HTTP_SSL_LISTENER_PORT=28393
IOP_SSL_MUTUALAUTH_PORT=29920
Command create-local-instance executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-local-instance --cluster IJServer001 instance1
Rendezvoused with DAS on localhost:12011.
Port Assignments for server instance instance1:
JMX_SYSTEM_CONNECTOR_PORT=28696
HTTP_LISTENER_PORT=28292
ASADMIN_LISTENER_PORT=24858
JAVA_DEBUGGER_PORT=29009
IOP_SSL_LISTENER_PORT=29820
IOP_LISTENER_PORT=29700
OSGI_SHELL_TELNET_PORT=26666
HTTP_SSL_LISTENER_PORT=28393
IOP_SSL_MUTUALAUTH_PORT=29920
Command create-local-instance executed successfully.
```

9.1.7.7 delete-local-instance Subcommand

Synopsis

```
delete-local-instance [instance_name]
```

Description

Deletes the server instance.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Operands

| Operand name | Omission | Description |
|---------------|----------|--|
| instance_name | Possible | Specify the server instance name. If there is only one server instance, this operand can be omitted. If there are multiple server instances, this operand must be specified. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- Before executing this command, stop the target server instance using the [stop-local-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.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All server instances in the IJServer cluster to which the server instance specified in the operand belongs

For this reason, the execution result for all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

- In the following case, the settings for linkage with the web server are cleared automatically:

- All server instances belonging to the IJServer cluster linked with the web server are deleted

When the settings for linkage with the web server are cleared, the "direct" setting is configured for the network configuration definition item "[Operation mode for access to the web container](#)", and the processing to update (synchronize) definition items is performed for the following synchronization targets:

- Server instances belonging to the IJServer cluster linked with the web server

For this reason, when this command is executed, the configuration result for definition items may be output. For details, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-local-instance instance1
Command delete-local-instance executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-local-instance instance1
Command delete-local-instance executed successfully.
```

9.1.7.8 start-local-instance Subcommand

Synopsis

```
start-local-instance [instance_name]
```

Description

Starts the server instance.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Operands

| Operand name | Omission | Description |
|---------------|----------|--|
| instance_name | Possible | Specify the server instance name. If there is only one server instance, this operand can be omitted. If there are multiple server instances, this operand must be specified. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- This subcommand returns without waiting for the start processing of the server instance to complete. Use the "9.13 pcmilistprocesses" command to check if the start processing of the server instance has completed.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "Notes on the asadmin command".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin start-local-instance instance1  
Command start-local-instance executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin start-local-instance instance1  
Command start-local-instance executed successfully.
```

9.1.7.9 stop-local-instance Subcommand

Synopsis

```
stop-local-instance [--force[=true|=false]] [instance_name]
```

Description

Stops the server instance.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --force | None | Stop the server instance by force. The default value is "false". |

Operands

| Operand name | Omission | Description |
|---------------|----------|--|
| instance_name | Possible | Specify the server instance name. If there is only one server instance, this operand can be omitted. If there are multiple server instances, this operand must be specified. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

This subcommand returns without waiting for the stop processing of the server instance to complete. Use the "[9.13 pcmilistprocesses](#)" command to check if the stop processing of the server instance has completed.

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin stop-local-instance instance1
Command stop-local-instance executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin stop-local-instance instance1
Command stop-local-instance executed successfully.
```

9.1.7.10 list-instances Subcommand

Synopsis

list-instances [target]

Description


Lists server instances and their operating status.
The operating status is shown using the following character string.

| Displayed contents | Meaning |
|--|---|
| running | Running status |
| not running | Stopping status |
| running; requires restart [pending config changes are: <Variable information>] | Running status Synchronization has not been performed. It will be performed when the next startup occurs. |
| not running [pending config changes are: <Variable information>] | Stopping status Synchronization has not been performed. It will be performed when the next startup occurs. |

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 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 the domain is specified, all server instance names are displayed. The same applies if this operand is omitted.</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 6 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

Notes

If this command is executed, for example, while the start or stop processing of the server instance is in progress, or while the system is in a high-load state, the operating status that is displayed and the startup status of the server instance may not match. To check the correct server instance startup status, refer to "9.13 [pcmilistprocesses](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-instances
IJServer001-1 running
IJServer001-2 running
IJServer002-1 not running
Command list-instances executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-instances
IJServer001-1 running
IJServer001-2 running
IJServer002-1 not running
Command list-instances executed successfully.
```

When there are no server instances, the following is output and a normal completion follows.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-instances
Nothing to list.
Command list-instances executed successfully.
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/bin/asadmin list-instances
Nothing to list.
Command list-instances executed successfully.
```

9.1.8 Subcommands - Category: Application Status Display

9.1.8.1 show-component-status Subcommand

Synopsis

show-component-status [--target target] component-name

Description

Displays the status of the application which has been deployed to the target, or the status of the lifecycle module.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify the target Interstage Java EE 6 DAS service instance name ("server"), IJServer cluster name or server instance name. The default value is "server". |

Operands

| Operand name | Omission | Description |
|----------------|--------------|--|
| component-name | Not possible | Specify the application name or lifecycle module name. |

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin show-component-status --target IJServer001 testEar
Status of testEar is enabled.
Command show-component-status executed successfully.
```

Solaris32/64 **Linux32/64**

```

/opt/FJSVisje6/glassfish/bin/asadmin show-component-status -target IJServer001 testEar
Status of testEar is enabled.
Command show-component-status executed successfully.

```

9.1.8.2 list-components Subcommand

Synopsis

list-components [--type application|ejb|web|connector|webservice] [target]

Description

Lists the applications which have been deployed to the target.

The following information is displayed. Additionally, applications deployed as web services can be displayed as webservice in addition to module.

- Application name
- Module type:
 - ear
 - ear file
 - web
 - war file
 - connector
 - rar file
 - ejb
 - ejb-jar file
 - appclient
 - client-jar file
 - webservises
 - Web service application

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --type | None | Specify the display target module type. If this is omitted, all module types will be displayed. |

Operands

| Operand name | Omission | Description |
|--------------|----------|---|
| target | Possible | Specify the target Interstage Java EE 6 DAS service instance name ("server"), IJServer cluster name or server instance name. To display all applications which have been deployed to the Java EE 6 operating environment, specify "domain". The default value is "server". |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-components IJServer001
testEar <ear, webservices, web, ejb>
testWeb <web>
testEjb <ejb>
testAppCl <appclient>
Command list-components executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-components IJServer001
testEar <ear, webservices, web, ejb>
testWeb <web>
testEjb <ejb>
testAppCl <appclient>
Command list-components executed successfully.
```

9.1.8.3 list-sub-components Subcommand

Synopsis

```
list-sub-components [--type ejbs|servlets] [--appname appname] modulename
```

Description

Lists the modules that are included in the deployed enterprise application (.ear). 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 usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --type | None | Specify the display target module type. If this is omitted, all module types will be displayed. |
| --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:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-sub-components testEar
testAppCl.jar <AppClientModule>
testEjb.jar <EJBModule>
testWeb.war <WebModule>
Command list-sub-components executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/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:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-sub-components --appname testEar testWeb.war
servlet1 <Servlet>
servlet2 <Servlet>
servlet3 <Servlet>
servlet4 <Servlet>
Command list-sub-components executed successfully.
```

Solaris32/64 Linux32/64

```

/opt/FJSVisje6/glassfish/bin/asadmin list-sub-components --appname testEar testWeb.war
servlet1 <Servlet>
servlet2 <Servlet>
servlet3 <Servlet>
servlet4 <Servlet>
Command list-sub-components executed successfully.

```

9.1.9 Subcommands - Category: Application Deployment



Note

For important notes, refer to "[1.3.1 Notes About Deployment](#)".

9.1.9.1 deploy Subcommand

Synopsis

```

deploy [--contextroot context_root] [--force[=true|=false]] [--name component_name] [--retrieve local_dirpath] [--enabled[=true|=false]]
[--libraries jar_file[,jar_file]...] [--target target] filepath

```

Description

Deploys the deployment module.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|---------------|---------------|---|
| --contextroot | None | Specify the context-root. This option is valid when the module type is the following: - Web application (.war) 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". |
| --name | None | Specify the application name. The default value is the module name excluding the file extension. Characters that can be specified in an application name are as follows: - Alphanumeric or special characters ('-', '_', '.', ':', ';') - Only an alphanumeric character or '_' can be specified as the first character |
| --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", " 4. Download the Client Stub JAR File ". |
| --enabled | None | Specify if the application is enabled or not after deployment. The default value is "true". |

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --libraries | None | 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. Note the following when using this option: <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 that does not contain commas in the path component. If commas are included, they will be treated as path separators and the deployment might fail. |
| --target | None | Specify the archive expansion target Interstage Java EE 6 DAS service instance name ("server") or IJServer cluster name. The default value is "server". Note that, if there is an application bug or definition error, the Interstage Java EE 6 DAS service may not be able to start up, therefore applications should not be deployed to Interstage Java EE 6 DAS services in the operating environment. |

Operands

| Operand name | Omission | Description |
|--------------|--------------|-----------------------------|
| filepath | Not possible | Specify the file to deploy. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- 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.
- An application name that already exists cannot be specified. Additionally, case-sensitivity does not apply, therefore if "app1" already exists, for example, then "APP1" cannot be specified.

Windows32/64

If an application with the same name is deployed unintentionally because case-sensitivity does not apply, the existing application and the application that was deployed may behave unpredictably. In this case, refer to "[11.3.1 Operating Environment-Related Errors](#)" - "[Applications with the Same Name That Is Not Case-Sensitive have been Deployed](#)" in [Chapter 11 Troubleshooting](#)", and immediately delete the existing application and the application that was deployed.

- Generally, it is not recommended to use the HotDeploy function while the system is running in production mode (performing the deployment operation while the target is running). Use the HotDeploy function when there are no requests.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin deploy --target IJServer001 sample.ear  
Command deploy executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin deploy --target IJServer001 sample.ear  
Command deploy executed successfully.
```

9.1.9.2 get-client-stubs Subcommand

Synopsis

```
get-client-stubs --appname application_name local_directory_path
```

Description

Obtains from the deployed application the stub files used by the client of the EJB application and the directory containing the files required for the execution of Java EE application client.

For details on the client stub JAR files and the structure of the directory that contains the files required to execute the Java EE application client, refer to ["4.9.2 Java EE Application Client Operation"](#), ["4. Download the Client Stub JAR File"](#).

For details on the usage and points to be noted on the asadmin command, refer also to ["9.1 asadmin"](#).

For details on the common options, refer to ["9.1.2 asadmin Command Common Options"](#).

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --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:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin get-client-stubs --appname sample C:\temp  
Command get-client-stubs executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin get-client-stubs --appname sample /temp  
Command get-client-stubs executed successfully.
```

9.1.9.3 undeploy Subcommand

Synopsis

```
undeploy [--cascade[=true|=false]] [--target target] component_name
```

Description

Undeploys the deployed application.

For details on the usage and points to be noted on the `asadmin` command, refer also to "9.1 `asadmin`".

For details on the common options, refer to "9.1.2 `asadmin` Command Common Options".

Options

| Option name | Mnemonic name | Description |
|------------------------|---------------|---|
| <code>--cascade</code> | 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. The default value is "false". |
| <code>--target</code> | None | Specify the archive expansion target Interstage Java EE 6 DAS service instance name ("server") or IJServer cluster name. The default value is "server". If the archive expansion target IJServer cluster has been deleted, specify "domain". |

Operands

| Operand name | Omission | Description |
|-----------------------------|--------------|-------------------------------|
| <code>component_name</code> | Not possible | Specify the application name. |

Return value

0: Ended normally

1: Ended abnormally

Notes

- Multiple deploy/undeploy operations cannot be executed at the same time. If a new deployment/undeployment operation is submitted before the current one returns, then the new operation will wait for the completion of the current one.
- If the IJServer cluster was deleted while the application is in a deployed state, specify "domain" in the `--target` option to undeploy the application.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "Notes on the `asadmin` command".

Example

Execute as follows:

```
Windows32/64
```

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin undeploy --target IJServer001 sample
Command undeploy executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJISVisje6/glassfish/bin/asadmin undeploy --target IJServer001 sample
Command undeploy executed successfully.
```

9.1.9.4 enable Subcommand

Synopsis

```
enable [--target target] component_name
```

Description

Enables the application or lifecycle module which has been deployed to the target.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify the target Interstage Java EE 6 DAS service instance name ("server"), IJServer cluster name or server instance name. The default value is "server". |

Operands

| Operand name | Omission | Description |
|----------------|--------------|---|
| component_name | Not possible | Specify the target application name or lifecycle module name. |

Return value

0: Ended normally
1: Ended abnormally

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin enable --target IJServer001 sample
Command enable executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin enable --target IJServer001 sample  
Command enable executed successfully.
```

9.1.9.5 disable Subcommand

Synopsis

disable [--target target] component_name

Description

Disables the application or lifecycle module which has been deployed to the target.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify the target Interstage Java EE 6 DAS service instance name ("server"), IJServer cluster name or server instance name. The default value is "server". |

Operands

| Operand name | Omission | Description |
|----------------|--------------|---|
| component_name | Not possible | Specify the target application name or lifecycle module name. |

Return value

0: Ended normally
1: Ended abnormally

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "Notes on the asadmin command".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin disable --target IJServer001 sample  
Command disable executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin disable --target IJServer001 sample
Command disable executed successfully.
```

9.1.10 Subcommands - Category:Web Server Linkage

Configure the settings for web server and IJServer cluster linkage. In the web server linkage subcommand, configure the linkage settings for when the web server and IJServer cluster are run on the same machine.

Note that the wscadmin command must be used to configure the linkage settings for when the web server and IJServer cluster are run on separate machines. For details, refer to "9.14 wscadmin".

9.1.10.1 create-web-server-ref Subcommand

Synopsis

```
create-web-server-ref --target ijsserver_name web_server_name
```

Description

Links the web server and the IJServer cluster or Interstage Java EE 6 DAS service. If a virtual host has been configured for the web server, this is also linked.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify the settings target IJServer cluster name or the Interstage Java EE 6 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

Notes

- An IJServer cluster for which there are no server instances cannot be linked with a web server. Add a server instance, and then execute this command.
- When linking with the web server, the "webservice" setting will be configured for "Operation mode for access to the web container" automatically. For this reason, requests that do not use a web server will be declined. To allow requests that do not use a web server, configure the "nocheck" setting for "Operation mode for access to the web container". For details, refer to the network configuration definition item "Operation mode for access to the web container".

Additionally, if this setting is configured, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All server instances belonging to the IJServer cluster specified in "target"

For this reason, when this command is executed, the configuration result for definition items may be output. For details on the execution result, refer to "Notes on the asadmin command".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-web-server-ref --target IJServer001 web001
```

Command create-web-server-ref executed successfully.

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-web-server-ref --target IJServer001 web001
```

Command create-web-server-ref executed successfully.

9.1.10.2 delete-web-server-ref Subcommand

Synopsis

```
delete-web-server-ref --target ijsrvr_name web_server_name
```

Description

Removes the link between the web server and the IJServer cluster or Interstage Java EE 6 DAS service. If a virtual host has been configured for the web server, this link is also removed.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify the settings target IJServer cluster name or the Interstage Java EE 6 DAS service instance name ("server"). |

Operands

| Operand name | Omission | Description |
|-----------------|--------------|--|
| web_server_name | Not possible | Specify the web server to which the link is removed. |

Return value

0: Ended normally

1: Ended abnormally

Note

When the settings for linkage with all web servers are cleared, the "direct" setting is configured for the network configuration definition item "[Operation mode for access to the web container](#)" automatically.

If this setting is configured, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All server instances belonging to the IJServer cluster specified in "target"

For this reason, when this command is executed, the configuration result for definition items may be output. For details, refer to "[Notes on the asadmin command](#)".

Example

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-web-server-ref --target IJServer001 web001  
Command delete-web-server-ref executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-web-server-ref --target IJServer001 web001  
Command delete-web-server-ref executed successfully.
```

9.1.10.3 list-web-server-refs Subcommand

Synopsis

```
list-web-server-refs --target ijservice_name
```

Description

Lists the web servers that are linked with the IJServer cluster or Interstage Java EE 6 DAS service.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --target | None | Specify the display target IJServer cluster name or the Interstage Java EE 6 DAS service instance name ("server"). |

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-web-server-refs --target IJServer001  
FJapache  
web001
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-web-server-refs --target IJServer001  
FJapache  
web001
```

9.1.10.4 create-virtual-host-ref Subcommand

Synopsis

```
create-virtual-host-ref --target ijsrvr_name --webserver web_server_name virtual_host_name
```

Description

If a virtual host has been configured for the web server that is linked with the IJServer cluster, the IJServer cluster can be accessed via the web server virtual host. To enable access via a specific virtual host, add the virtual host that will be used by the web server connector to receive requests in this command. If the virtual host is added, only requests from the added virtual host will be received. For requests from other virtual hosts, status code 404 (Not Found) will be returned.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify the settings target IJServer cluster name or the Interstage Java EE 6 DAS service instance name ("server"). |
| --webserver | None | Specify the web server for which the virtual host is configured. |

Operands

| Operand name | Omission | Description |
|-------------------|--------------|---|
| virtual_host_name | Not possible | Specify the virtual host by using one of the following formats: <ul style="list-style-type: none">- IP address:port number/host name- IP address/host name |

Return value

0: Ended normally
1: Ended abnormally

Notes

- To configure this setting, the IJServer cluster and web server for which the virtual host is configured must be linked.
- To use the virtual host in the IJServer cluster, the following directives must be configured in the web server environment definition file (httpd.conf):
 - When the directive is specified in virtual_host_name in the format "IP address:port number/host name":
 1. Add "UseCanonicalPhysicalPort On".
 2. To access from the client by using a name other than the virtual host name, configure the "On" setting for "UseCanonicalName".
 - When the directive is specified in virtual_host_name in the format "IP address/host name":

To access from the client by using a name other than the virtual host name, configure the "On" setting for "UseCanonicalName".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-virtual-host-ref --target IJServer001 --webserver FJapache 192.0.2.1:81/virtualhost1
```


Command create-virtual-host-ref executed successfully.

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/bin/asadmin create-virtual-host-ref --target IJServer001 --webserver FJapache  
192.0.2.1:81/virtualhost1
```

Command create-virtual-host-ref executed successfully.

9.1.10.5 delete-virtual-host-ref Subcommand

Synopsis

```
delete-virtual-host-ref --target ijserver_name --webserver web_server_name virtual_host_name
```

Description

Excludes the virtual hosts that receive requests which were added in the create-virtual-host-ref subcommand. When all virtual hosts are excluded, all requests from all virtual hosts and web servers, both of which are linked with the IJServer cluster, will be received.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify the settings target IJServer cluster name or the Interstage Java EE 6 DAS service instance name ("server"). |
| --webserver | None | Specify the web server for which the virtual host is configured. |

Operands

| Operand name | Omission | Description |
|-------------------|--------------|--|
| virtual_host_name | Not possible | Specify the virtual host to be excluded by using one of the following formats: <ul style="list-style-type: none">- IP address:port number/host name- IP address/host name |

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-virtual-host-ref --target IJServer001 --webserver FJapache  
192.0.2.1:81/virtualhost1
```

Command delete-virtual-host-ref executed successfully.

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-virtual-host-ref --target IJServer001 --webserver FJapache  
192.0.2.1:81/virtualhost1
```

Command delete-virtual-host-ref executed successfully.

9.1.10.6 list-virtual-host-refs Subcommand

Synopsis

```
list-virtual-host-refs --target ijsrvr_name --webserver web_server_name
```

Description

Lists the virtual hosts that receive requests which were added in the create-virtual-host-ref subcommand for the IJServer cluster or Interstage Java EE 6 DAS service. If there are no virtual hosts which receive requests, "Nothing to List." is displayed. This means that all requests from all virtual hosts and web servers, both of which are linked with the IJServer cluster or the Interstage Java EE 6 DAS service, will be received.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --target | None | Specify the display target IJServer cluster name or the Interstage Java EE 6 DAS service instance name ("server"). |
| --webserver | None | Specify the web server. |

Return value

0: Ended normally
1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-virtual-host-refs --target IJServer001 --webserver FJapache  
192.0.2.1:81/virtualhost1  
192.0.2.1:81/virtualhost2
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-virtual-host-refs --target IJServer001 --webserver FJapache  
192.0.2.1:81/virtualhost1  
192.0.2.1:81/virtualhost2
```

9.1.10.7 update-web-server-connector-config Subcommand

Synopsis

```
update-web-server-connector-config [--sendreivetimeout=time_out] [--maxprocessors=max_processors] --target ijsrvr_name
```

Description

Updates the web server connector environment settings for the IJServer cluster.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|----------------------|---------------|---|
| --sendreceivetimeout | None | Specify the send/receive timeout (the time until communication is cut after communication from the web container is lost) from 1 to 2147483647 seconds. If omitted, this setting will not be updated. The value, immediately after web server linkage is configured, is "600". |
| --maxprocessors | None | Specify the maximum number of connections to the web container from 0 to 2048. If 0 is specified, it will become infinite. If omitted, this setting will not be updated. The value, immediately after web server linkage is configured, is "0". |
| --target | None | Specify the settings target IJServer cluster name or the Interstage Java EE 6 DAS service instance name ("server"). |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin update-web-server-connector-config --sendreceivetimeout=600 --target IJServer001  
Command update-web-server-connector-config executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin update-web-server-connector-config --sendreceivetimeout=600 --target IJServer001  
Command update-web-server-connector-config executed successfully.
```

9.1.10.8 show-web-server-connector-config Subcommand

Synopsis

```
show-web-server-connector-config --target ijservice_name
```

Description

Displays the web server connector environment of the IJServer cluster.
The values displayed are as follows:

- sendreceivetimeout: Send Received Timeout
- maxprocessors: Maximum number of connections to the web container

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify the display target IJServer cluster name. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin show-web-server-connector-config --target IJServer001  
sendreceiveivetimeout = 600  
maxprocessors = 0
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin show-web-server-connector-config --target IJServer001  
sendreceiveivetimeout = 600  
maxprocessors = 0
```

9.1.11 Subcommands - Category: Listener

9.1.11.1 list-iiop-listeners Subcommand

Synopsis

```
list-iiop-listeners [target]
```

Description

Lists the IIOP listeners.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Operands

| Operand name | Omission | Description |
|--------------|----------|---|
| target | Possible | Specify one of the following values. The default value is "server". <ul style="list-style-type: none">- Setting name- IJServer cluster name- Server instance name- Interstage Java EE 6 DAS service instance name ("server") |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-iiop-listeners IJServer001
orb-listener-1
SSL
SSL_MUTUALAUTH
Command list-iiop-listeners executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-iiop-listeners IJServer001
orb-listener-1
SSL
SSL_MUTUALAUTH
Command list-iiop-listeners executed successfully.
```

9.1.12 Subcommands - Category: Thread Pool

9.1.12.1 create-threadpool Subcommand

Synopsis

```
create-threadpool [--target target] [--maxthreadpoolsiz max_thread_pool_size] [--minthreadpoolsiz min_thread_pool_size] [--idletimeout idle_thread_timeout_in_seconds] threadpool_id
```

Description

Creates 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 usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------------------|---------------|--|
| --target | None | Specify one of the following values. The default value is "server". <ul style="list-style-type: none">- Setting name- IJServer cluster name- Interstage Java EE 6 DAS service instance name ("server") |
| --maxthreadpoolsiz e | None | Specify the maximum value of the thread pool size. The default value is "5". |
| --minthreadpoolsiz e | None | Specify the initial value of the thread pool size and the minimum size. The default value is "2". |
| --idletimeout | None | Specify the maximum time (in seconds) that the thread in the pool can be idle. The default value is "900" (seconds). |

Operands

| Operand name | Omission | Description |
|---------------|--------------|-----------------------------|
| threadpool_id | Not possible | Specify the thread pool ID. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-threadpool --target IJServer001 --maxthreadpoolsize 100 --minthreadpoolsize 20 --idletimeout 600 priority-A  
Command create-threadpool executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-threadpool --target IJServer001 --maxthreadpoolsize 100 --minthreadpoolsize 20 --idletimeout 600 priority-A  
Command create-threadpool executed successfully.
```

9.1.12.2 delete-threadpool Subcommand

Synopsis

```
delete-threadpool [--target target] threadpool_id
```

Description

Deletes the thread pool.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --target | None | Specify one of the following values. The default value is "server". <ul style="list-style-type: none">- Setting name- IJServer cluster name- Interstage Java EE 6 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.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-threadpool --target IJServer001 priority-A  
Command delete-threadpool executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-threadpool --target IJServer001 priority-A  
Command delete-threadpool executed successfully.
```

9.1.12.3 list-threadpools Subcommand

Synopsis

list-threadpools target

Description

Lists the thread pools.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Operands

| Operand name | Omission | Description |
|--------------|--------------|--|
| target | Not possible | Specify one of the following values. <ul style="list-style-type: none">- Setting name- IJServer cluster name- Server instance name- Interstage Java EE 6 DAS service instance name ("server") |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-threadpools IJServer001
http-thread-pool
thread-pool-1
priority-A
Command list-threadpools executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-threadpools IJServer001
http-thread-pool
thread-pool-1
priority-A
Command list-threadpools executed successfully.
```

9.1.13 Subcommands - Category: Transaction

9.1.13.1 freeze-transaction-service Subcommand

Synopsis

```
freeze-transaction-service [--target target]
```

Description

Freezes the transactions currently running. Transactions that are already frozen are not frozen again.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --target | None | Specify the server instance name. The default value is "server". |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64


```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin freeze-transaction-service --target IJServer001-1
Command freeze-transaction-service executed successfully.
```

[Solaris32/64](#) [Linux32/64](#)

```
/opt/FJSVisje6/glassfish/bin/asadmin freeze-transaction-service --target IJServer001-1
Command freeze-transaction-service executed successfully.
```

9.1.13.2 unfreeze-transaction-service Subcommand

Synopsis

```
unfreeze-transaction-service [--target target]
```

Description

Unfreezes frozen transactions. Transactions that have not been frozen yet are not unfrozen.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --target | None | Specify the server instance name. The default value is "server". |

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

[Windows32/64](#)

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin unfreeze-transaction-service --target IJServer001-1
Command unfreeze-transaction-service executed successfully.
```

[Solaris32/64](#) [Linux32/64](#)

```
/opt/FJSVisje6/glassfish/bin/asadmin unfreeze-transaction-service --target IJServer001-1
Command unfreeze-transaction-service executed successfully.
```

9.1.13.3 recover-transactions Subcommand

Synopsis

```
recover-transactions [--transactionlogdir transaction_log_dir] [--target target_server_name] server_name
```

Description

Performs a recovery process of indoubt transactions.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|---------------------|---------------|---|
| --transactionlogdir | 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). |
| --target | None | Specify an alternate server instance name to perform recovery from the alternate server instance if the server instance specified in the server_name operand has crashed. The default value is the value specified as the server_name operand. The transaction log storage location that is used for recovery can be specified in the --transactionlogdir 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:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin recover-transactions IJServer001-1  
Command recover-transactions executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin recover-transactions IJServer001-1  
Command recover-transactions executed successfully.
```

9.1.13.4 rollback-transaction Subcommand

Synopsis

```
rollback-transaction [--target target] --transaction_id transaction_id
```

Description

Marks 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 usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|------------------|---------------|--|
| --target | None | Specify the server instance name. The default value is "server". |
| --transaction_id | None | Specify the transaction ID of the transaction to mark for roll back. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin rollback-transaction --target IJServer001-1 --transaction_id
0000000000000001
Command rollback-transaction executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin rollback-transaction --target IJServer001-1 --transaction_id
0000000000000001
Command rollback-transaction executed successfully.
```

9.1.14 Subcommands - Category: Resources

9.1.14.1 create-jdbc-connection-pool Subcommand

Synopsis

```
create-jdbc-connection-pool --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 {isValid|table}] [--validationtable tablename] [--failconnection[=true|=false]] [--
allownoncomponentcallers[=true|=false]] [--nontransactionalconnections[=true|=false]] [--description text] [--property
name=value[:name=value]...] jdbc_connection_pool_id
```

Description

Creates the JDBC connection pool.


For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|---------------------------|---------------|--|
| --datasourceclassna me | None | Specify the class name of the datasource provided by the vendor. |
| --restype | None | Specify the interface that the data source class implements. Specify one of the following: - javax.sql.DataSource |

| Option name | Mnemonic name | Description |
|-----------------------|---------------|--|
| | | <ul style="list-style-type: none"> - javax.sql.ConnectionPoolDataSource - javax.sql.XADataSource <p>If this option is omitted or the data source class has not implemented the interface specified in this option, the behavior will be the same as when javax.sql.DataSource is specified.</p> |
| --steadypoolsize | None | <p>Specify the minimum number of connections in the pool. This value is also specified as the number of connections contained in the pool when the pool is first created.</p> <p>The default value is "8".</p> |
| --maxpoolsize | None | <p>Specify the maximum number of connections contained in the pool.</p> <p>The default value is "32".</p> |
| --maxwait | None | <p>Specify how long (in milliseconds) the application that requests the connection will wait until a connection timeout occurs.</p> <p>The default value is "60000" (milliseconds). If "0" is specified, no timeout occurs.</p> |
| --poolresize | None | <p>If the pool size is increased and reduced for maximum pool size and minimum pool size, the pool size will be changed using batch processing. For this value, specify the number of connections in batch processing. If an excessively high value is configured, the creation and reuse of the connection will be delayed. If an excessively low value is configured, it will limit performance. A value from 1 to 2147483647 can be specified.</p> <p>The default value is "2".</p> |
| --idletimeout | None | <p>Specify the maximum length of time (in seconds) connections in the pool can remain idle. If this time is exceeded, the connection will be deleted from the pool. If "0" is specified, the connection cannot be deleted from the pool because of an idle timeout.</p> <p>The default value is "300" (seconds).</p> |
| --isolationlevel | None | <p>One of the values shown below can be specified as the transaction isolation level for pool connections. If none of these values is specified, the default isolation level configured for the JDBC driver will be applied for the connection.</p> <ul style="list-style-type: none"> - read-uncommitted The isolation level is TRANSACTION_READ_UNCOMMITTED - read-committed The isolation level is TRANSACTION_READ_COMMITTED - repeatable-read The isolation level is TRANSACTION_REPEATABLE_READ - serializable The isolation level is TRANSACTION_SERIALIZABLE |
| --isolationguaranteed | None | <p>This is only applied if the isolation level has been specified. If "true" is specified, all connections obtained from the pool will have the same isolation level. For example, if the setTransactionIsolation() method for the connection was used to change the isolation level at the program level at the last time of use, as a result of this mechanism, when a connection that has been returned to the pool is obtained again, the connection is reverted to the isolation level that was specified.</p> <p>The default value is "true".</p> |

| Option name | Mnemonic name | Description |
|-------------------------------|---------------|--|
| --isconnectvalidatereq | None | If "true" is specified, connection validation is enabled. The default value is "true". |
| --validationmethod | None | <p>In Application Server, database connections can be validated using the methods shown below. The default value is "isValid".</p> <ul style="list-style-type: none"> - isValid - table <p>Each is validated as follows:</p> <ul style="list-style-type: none"> - isValid <ul style="list-style-type: none"> If the database is Symfoware, Application Server issues the "SELECT 1" SQL statement and then validates the connection. If the database is not Symfoware, Application Server calls the isValid() method for the connection and then validates the connection. - table <ul style="list-style-type: none"> Application Server queries the specified database table. The table must be present and access must be possible, however rows are not required. Existing tables with many rows, and tables which have already been accessed frequently, should not be used. <p> Note</p> <p>.....</p> <p>If the connection which is to be verified is in the container transaction, the connection will not be verified.</p> <p>.....</p> |
| --validationtable | None | If "table" is selected for --validationmethod, specify the name of the database table. |
| --failconnection | None | If "true" is specified and a connection fails, Application Server closes and re-establishes all connections contained in the pool. If "false" is specified, individual connections are re-established only when they are used. The default value is "false". |
| --allownoncomponentcallers | None | If "true" is specified, only connections opened after the JTA transaction has started will enlist in the transaction. The default value is "false". |
| --nontransactionalconnections | None | If "true" is specified, non-transactional connections are returned. The default value is "false". |
| --description | None | A database description can be specified. |
| --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 require escaping, refer to "Using escape characters".</p> <p>If the property value type is java.util.Properties, specify the value in the property in the format "[name=value[,name=value]...]". The following characters cannot be used for "name" and "value":</p> <ul style="list-style-type: none"> "," (comma) "=" (equals sign) <p>Since the required properties differ by database vendor, refer to the vendor manual for details.</p> |

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

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\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:database
Name=symdb sample_symfo_pool
JDBC connection pool sample_symfo_pool created successfully.
Command create-jdbc-connection-pool executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/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:database
Name=symdb sample_symfo_pool
JDBC connection pool sample_symfo_pool created successfully.
Command create-jdbc-connection-pool executed successfully.
```

9.1.14.2 delete-jdbc-connection-pool Subcommand

Synopsis

```
delete-jdbc-connection-pool [--cascade[=true|=false]] jdbc_connection_pool_id
```

Description

Deletes the JDBC connection pool.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --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 value 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

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-jdbc-connection-pool sample_symfo_pool
JDBC Connection pool sample_symfo_pool deleted successfully
Command delete-jdbc-connection-pool executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-jdbc-connection-pool sample_symfo_pool
JDBC Connection pool sample_symfo_pool deleted successfully
Command delete-jdbc-connection-pool executed successfully.
```

9.1.14.3 list-jdbc-connection-pools Subcommand

Synopsis

```
list-jdbc-connection-pools
```

Description

Lists the JDBC connection pools.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-jdbc-connection-pools
sample_symfo_pool
Command list-jdbc-connection-pools executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-jdbc-connection-pools
sample_symfo_pool
Command list-jdbc-connection-pools executed successfully.
```

9.1.14.4 ping-connection-pool Subcommand

Synopsis

```
ping-connection-pool jdbc_connection_pool_id
```

Description

Pings the JDBC connection pool. For details refer to "[4.14.7 Ping Functionality](#)".

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 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:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin ping-connection-pool sample_symfo_pool
Command ping-connection-pool executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin ping-connection-pool sample_symfo_pool
Command ping-connection-pool executed successfully.
```


9.1.14.5 create-jdbc-resource Subcommand

Synopsis

```
create-jdbc-resource --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 usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|--------------------|---------------|---|
| --connectionpoolid | None | Specify the name of the JDBC connection pool that is to be associated with the JDBC resources. |
| --enabled | None | To block the use of the resource, specify "false". The default value is "true". |
| --description | None | A data source description can be specified. |
| --target | None | Specify the JDBC resource reference destination (JServer cluster name, "server", or "domain"). The default value is "server". If "domain" is specified as the reference destination, or the reference destination is added after it is created, use the create-resource-ref subcommand of the asadmin command to specify the reference destination. |
| --property | None | In this version, there are no properties that can be specified. |

Operands

| Operand name | Omission | Description |
|--------------|--------------|---|
| jndi_name | Not possible | Specify a JDBC resource name that will be unique in the JNDI namespace. |

Return value

0: Ended normally
1: Ended abnormally

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

```
Windows32/64
```

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jdbc-resource --target IJServer001 --connectionpoolid
sample_symfo_pool jdbc/symfo
JDBC resource jdbc/symfo created successfully.

Command create-jdbc-resource executed successfully.
```

[Solaris32/64](#) [Linux32/64](#)

```
/opt/FJSVisje6/glassfish/bin/asadmin create-jdbc-resource --target IJServer001 --connectionpoolid
sample_symfo_pool jdbc/symfo
JDBC resource jdbc/symfo created successfully.

Command create-jdbc-resource executed successfully.
```

9.1.14.6 delete-jdbc-resource Subcommand

Synopsis

```
delete-jdbc-resource [--target target] jndi_name
```

Description

Deletes the JDBC resource.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --target | None | Specify the JDBC resource reference destination (IJServer cluster name, "server", or "domain"). The default value is "server". |

Operands

| Operand name | Omission | Description |
|--------------|--------------|---------------------------------|
| jndi_name | Not possible | Specify the JDBC resource name. |

Return value

0: Ended normally
1: Ended abnormally

Notes

- If two or more reference destinations exist for the resource, the command execution will fail. Use the [delete-resource-ref subcommand](#) of the asadmin command to delete the reference destinations that were added, and then re-execute.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-jdbc-resource --target IJServer001 jdbc/symfo
JDBC resource jdbc/symfo deleted successfully
Command delete-jdbc-resource executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-jdbc-resource --target IJServer001 jdbc/symfo
JDBC resource jdbc/symfo deleted successfully
Command delete-jdbc-resource executed successfully.
```

9.1.14.7 list-jdbc-resources Subcommand

Synopsis

list-jdbc-resources [target]

Description

Lists the JDBC resources.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Operands

| Operand name | Omission | Description |
|--------------|----------|--|
| target | Possible | Specify the JDBC resource reference destination (IJServer cluster name, server instance name, "server", or "domain"). The default value is "server". |

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-jdbc-resources IJServer001
jdbc/__TimerPool
jdbc/__default
jdbc/symfo
Command list-jdbc-resources executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-jdbc-resources IJServer001
jdbc/__TimerPool
jdbc/__default
jdbc/symfo
Command list-jdbc-resources executed successfully.
```

9.1.14.8 create-jms-resource Subcommand

Synopsis

```
create-jms-resource --restype resource_type [--enabled[=true|=false]] [--description text] [--target target] [--property name=value[:name=value]...] jndi_name
```

Description

Creates the JMS connection factory or JMS send destination resources.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|---------------|---------------|---|
| --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 | To block the use of the resource, specify "false". The default value is "true". |
| --description | None | Specify a resource description. |
| --target | None | Specify the JMS connection factory or the reference destination of the JMS send destination resource (IISServer cluster name, "server", or "domain"). However, "domain" cannot be specified if the following are specified for the --restype option: <ul style="list-style-type: none"> - javax.jms.Topic - javax.jms.Queue The default value is "server". If the reference destination is not specified, or the reference destination is added after the resource is created, use the create-resource-ref subcommand of the asadmin command to specify the reference destination. |
| --property | None | Specify properties to be added by separating the "property name=value" pairs by a colon (:). |

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 specified 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". |

| Property name | Description |
|---------------|--|
| Password | Specify the connection factory password. The default is "guest". |

The following properties can be specified for the JMS send destination resources:

| Property name | Description |
|---------------|--|
| Name | <p>Specify the physical storage destination that is the target of the JMS send destination resources. The physical storage destination is created using the <code>imqcmd</code> command <code>create dst</code> 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 <code>jndi_name</code> operand.</p> <p>However, if any of the characters shown below are included in the <code>jndi_name</code> 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 underscore ("_") or dollar sign ("\$") <p> Example</p> <p>.....</p> <p>When the <code>jndi_name</code> operand is "001jms@Queue"</p> <p>The physical storage destination name will be "_01jms_Queue".</p> <p>.....</p> |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the `asadmin` command](#)".

Example

To create the JMS connection factory, execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jms-resource --restype
javax.jms.TopicConnectionFactory --property ClientId=MyID jms/MyConnectionFactory
Connector resource jms/MyConnectionFactory created.
Command create-jms-resource executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSSVisje6/glassfish/bin/asadmin create-jms-resource --restype javax.jms.TopicConnectionFactory --
property ClientId=MyID jms/MyConnectionFactory
```

```
Connector resource jms/MyConnectionFactory created.  
Command create-jms-resource executed successfully.
```

To create the JMS send destination resources, execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jms-resource --restype javax.jms.Topic --property  
Name=MyTopic jms/MyTopic  
Administered object jms/MyTopic created.  
Command create-jms-resource executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVIsje6/glassfish/bin/asadmin create-jms-resource --restype javax.jms.Topic --property Name=MyTopic  
jms/MyTopic  
Administered object jms/MyTopic created.  
Command create-jms-resource executed successfully.
```

9.1.14.9 delete-jms-resource Subcommand

Synopsis

```
delete-jms-resource [--target target] jndi_name
```

Description

Deletes the JMS connection factory or the JMS send destination resource.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify the JMS connection factory or the reference destination of the JMS send destination resource (IIServer cluster name, "server", or "domain"). However, "domain" cannot be specified if the reference destination of the JMS send destination resource is specified. The default value is "server". |

Operands

| Operand name | Omission | Description |
|--------------|--------------|--|
| jndi_name | Not possible | Specify the name of the JNDI resource that is to be deleted. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- If there are multiple reference destinations in the resource, 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 reference destination of the JMS send destination resource does not exist, the command execution will fail. Delete the JMS send destination resource before deleting the reference destination IJServer cluster.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

To delete the JMS connection factory, execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-jms-resource jms/MyConnectionFactory
Command delete-jms-resource executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-jms-resource jms/MyConnectionFactory
Command delete-jms-resource executed successfully.
```

To delete the JMS send destination resource, execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-jms-resource jms/MyTopic
Administered object jms/MyTopic deleted.
Command delete-jms-resource executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-jms-resource jms/MyTopic
Administered object jms/MyTopic deleted.
Command delete-jms-resource executed successfully.
```

9.1.14.10 list-jms-resources Subcommand

Synopsis

```
list-jms-resources [--restype resource_type] [target]
```

Description

Lists the JMS connection factories and JMS send destination resources.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --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 If this is omitted, all JMS connection factory and JMS send destination resource information will be displayed. |

Operands

| Operand name | Omission | Description |
|--------------|----------|--|
| target | Possible | Specify the reference destination of the JMS connection factory or the JMS send destination resource (JServer cluster name, server instance name, "server", or "domain"). The default value is "server". |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-jms-resources
jms/MyTopicCF
jms/MyQueueCF
Command list-jms-resources executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-jms-resources
jms/MyTopicCF
jms/MyQueueCF
Command list-jms-resources executed successfully.
```

9.1.14.11 create-jndi-resource Subcommand

Synopsis

```
create-jndi-resource [--target target] --jndilookupname lookup_name --restype type --factoryclass class_name [--enabled[=true|=false]]
[--description text] [--property name=value[:name=value]...] jndi_name
```

Description

Creates the external resource.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|------------------|---------------|--|
| --target | None | Specify the reference destination (IJSERVER cluster name, "server" or "domain") of the external resource. The default value is "server". If "domain" is specified as the reference destination, or the reference destination is added after it is created, use the asadmin command create-resource-ref subcommand to specify the reference destination. |
| --jndilookupname | None | Enter the JNDI name used for the external repository search. |
| --restype | None | Enter the object format in the fully modified format (for example, javax.jms.Topic). |
| --factoryclass | None | Specify the factory class resource. The javax.naming.spi.InitialContextFactory must be implemented. For details on factory classes, refer to "4.13.5 Procedure When a Resource Defined by the User Independently Is Used" . |
| --enabled | None | To block the use of the resource, specify "false". If this option is omitted, the resource can be used as soon as 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

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to ["Notes on the asadmin command"](#).

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jndi-resource --target IJSERVER001 --jndilookupname MyName --restype com.mycompany.Widget --factoryclass com.mycompany.WidgetExternalFactory WidgetExternal  
Command create-jndi-resource executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-jndi-resource --target IJServer001 --jndilookupname MyName --
restype com.mycompany.Widget --factoryclass com.mycompany.WidgetExternalFactory WidgetExternal
Command create-jndi-resource executed successfully.
```

9.1.14.12 delete-jndi-resource Subcommand

Synopsis

```
delete-jndi-resource [--target target] jndi_name
```

Description

Deletes the external resource.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --target | None | Specify the reference destination (IJServer cluster name, "server" or "domain") of the external resource. The default value is "server". |

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.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "Notes on the asadmin command".

Example

Execute as follows:

```
Windows32/64
```

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-jndi-resource --target IJServer001 WidgetExternal
Command delete-jndi-resource executed successfully.
```

```
Solaris32/64 Linux32/64
```

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-jndi-resource --target IJServer001 WidgetExternal  
Command delete-jndi-resource executed successfully.
```

9.1.14.13 list-jndi-resources Subcommand

Synopsis

```
list-jndi-resources [target]
```

Description

Lists the external resources.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 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 value is "server". |

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-jndi-resources IJServer001  
WidgetExternal1  
WidgetExternal2  
WidgetExternal3  
Command list-jndi-resources executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-jndi-resources IJServer001  
WidgetExternal1  
WidgetExternal2  
WidgetExternal3  
Command list-jndi-resources executed successfully.
```

9.1.14.14 list-jndi-entries Subcommand

Synopsis

```
list-jndi-entries [--context context_name] [target]
```

Description

Displays the JNDI tree.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --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 6 DAS service instance name ("server"). If the server instance that has not started is specified, an error will occur. The default value is "server". The object registered in the specified instance is displayed. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-jndi-entries --context jdbc IJServer001-1
IJServer001-1:
symfo: org.glassfish.javaee.services.ResourceProxy
Command list-jndi-entries executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-jndi-entries --context jdbc IJServer001-1
IJServer001-1:
symfo: org.glassfish.javaee.services.ResourceProxy
Command list-jndi-entries executed successfully.
```

9.1.14.15 create-javamail-resource Subcommand

Synopsis

```
create-javamail-resource [--target target] --mailhost hostname --mailuser username --fromaddress address [--storeprotocol storeprotocol]
[--storeprotocolclass storeprotocolclass] [--transprotocol transprotocol] [--transprotocolclass transprotocolclass] [--debug[=true|=false]]
[--description text] [--property name=value[:name=value]...] jndi_name
```

Description

Creates the JavaMail session.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|----------------------|---------------|---|
| --target | None | Specify the JavaMail session resource reference destination (JServer cluster name, "server", or "domain"). The default value is "server". |
| --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: <ul style="list-style-type: none"> - imap: When IMAP is used (default value) - pop3: When POP3 is used |
| --storeprotocolclass | None | Specify the class name of the receive protocol class. Specify the following values: <ul style="list-style-type: none"> - com.sun.mail.imap.IMAPStore: When IMAP is used (default value) - com.sun.mail.pop3.POP3Store: When POP3 is used |
| --transprotocol | None | Specify the send protocol to be used by default. Specify the following values: <ul style="list-style-type: none"> - smtp: When SMTP is used (default value) |
| --transprotocolclass | None | Specify the class name of the send protocol. Specify the following values: <ul style="list-style-type: none"> - com.sun.mail.smtp.SMTPTransport: When SMTP is used (default value) |
| --debug | None | To output the debug information, specify "true". If true is specified, "true" is set for the Session Property mail.debug. The default value is "false". |
| --description | None | Provide a description for 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. |

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

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-javamail-resource --mailhost localhost --mailuser user00
--fromaddress user00@hosta.com mail/mail1
Mail Resource mail/mail1 created.
Command create-javamail-resource executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-javamail-resource --mailhost localhost --mailuser user00 --
fromaddress user00@hosta.com mail/mail1
Mail Resource mail/mail1 created.
Command create-javamail-resource executed successfully.
```

9.1.14.16 delete-javamail-resource Subcommand

Synopsis

```
delete-javamail-resource [--target target] jndi_name
```

Description

Deletes the JavaMail session.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --target | None | Specify the JavaMail session resource reference destination (JServer cluster name, "server", or "domain"). The default value is "server". To delete a JavaMail session that is not being referenced either by the JServer cluster or by the Interstage Java EE 6 DAS service, specify "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.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-javamail-resource mail/mail1
Mail resource mail/mail1 deleted.
Command delete-javamail-resource executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-javamail-resource mail/mail1
Mail resource mail/mail1 deleted.
Command delete-javamail-resource executed successfully.
```

9.1.14.17 list-javamail-resources Subcommand

Synopsis

```
list-javamail-resources [target]
```

Description

Obtains the JavaMail list.

For details on the usage and points to be noted on the `asadmin` command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Operands

| Operand name | Omission | Description |
|--------------|----------|---|
| target | Possible | Specify the JavaMail session resource reference destination (JServer cluster name, server instance name, "server", or "domain"). The default value is "server". |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-javamail-resources
mail/mail1
Command list-javamail-resources executed successfully.
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/bin/asadmin list-javamail-resources
mail/mail1
Command list-javamail-resources executed successfully.
```

9.1.14.18 create-custom-resource Subcommand

Synopsis

```
create-custom-resource [--target target] --restype type --factoryclass classname [--enabled[=true|=false]] [--description text] [--property
name=value[:name=value]...] jndi_name
```

Description

Creates the custom resource.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|----------------|---------------|--|
| --target | None | Specify the reference destination of the custom resource (JServer cluster name, "server" or "domain"). The default value is "server". If "domain" is specified as the reference destination, or the reference destination is added after it is created, use the create-resource-ref subcommand of the asadmin command to specify the reference destination. |
| --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. For details on factory classes, refer to "4.13.5 Procedure When a Resource Defined by the User Independently Is Used". |
| --enabled | None | To block the use of the resource, specify false. If this option is omitted, the resource can be used as soon as 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

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-custom-resource --target IJServer001 --restype com.mycompany.Widget --factoryclass com.mycompany.WidgetFactory Widget  
Command create-custom-resource executed successfully.
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/bin/asadmin create-custom-resource --target IJServer001 --restype com.mycompany.Widget --factoryclass com.mycompany.WidgetFactory Widget  
Command create-custom-resource executed successfully.
```

9.1.14.19 delete-custom-resource Subcommand

Synopsis

```
delete-custom-resource [--target target] jndi_name
```

Description

Deletes the custom resource.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --target | None | Specify the reference destination of the custom resource (IJServer cluster name, "server" or "domain"). The default value is "server". |

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 delete-resource-ref` subcommand, and then execute it again.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-custom-resource --target IJServer001 Widget
Command delete-custom-resource executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-custom-resource --target IJServer001 Widget
Command delete-custom-resource executed successfully.
```

9.1.14.20 list-custom-resources Subcommand

Synopsis

`list-custom-resources [target]`

Description

Obtains a custom resource list.

For details on the usage and points to be noted on the `asadmin` command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 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 value is "server". |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-custom-resources IJServer001
Widget1
```

```
Widget2
Widget3
Command list-custom-resources executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-custom-resources IJServer001
Widget1
Widget2
Widget3
Command list-custom-resources executed successfully.
```

9.1.14.21 create-connector-connection-pool Subcommand

Synopsis

```
create-connector-connection-pool [--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 usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|------------------------|---------------|---|
| --steadypoolsize | None | Specify the initial/minimal pool size. The default value is "8". |
| --maxpoolsize | None | Specify the maximum pool size. The default value is "32". |
| --maxwait | None | Specify the maximum wait time (in milliseconds). The default value is "60000". |
| --poolresize | None | Specify the pool resizing value. The default value is "2". |
| --idletimeout | None | Specify the idle timeout (in seconds). The default value is "300". |
| --failconnection | None | Specify the "On Any Failure" function. The default value is "false". |
| --raname | None | Specify the resource adapter name. |
| --connectiondefinition | None | Specify the connection definition name. |
| --transactionsupport | None | Specify the transaction support level. This is enabled when it is equal to or lower than the level described in ra.xml. If a higher level than the one described in ra.xml is specified, an error will be output to the server log when the IJServer cluster or Interstage Java EE 6 DAS service starts up. |

| Option name | Mnemonic name | Description |
|----------------------------|---------------|--|
| | | <ul style="list-style-type: none"> - XATransaction When XA transactions are specified - LocalTransaction When local transactions are specified - NoTransaction When non-transactions are specified <p>If this option is omitted, the transaction support level described in ra.xml will be used. If the ra.xml transaction support level setting has also been omitted, NoTransaction will be used.</p> |
| --isconnectvalidater eq | None | Specify the connection validation function. The default value is "false". |
| --description | None | Specify the text that is used for the connector connection pool description. |
| --property | None | Specify the config 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

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-connector-connection-pool --rename sampleRar --
connectiondefinition javax.resource.cci.ConnectionFactory --property prop1=value1:prop2=value2 eis/
connectionPool
Connector connection pool eis/connectionPool created.
Command create-connector-connection-pool executed successfully.
```

Solaris32/64 Linux32/64

```

/opt/FJSVisje6/glassfish/bin/asadmin create-connector-connection-pool --raname sampleRar --
connectiondefinition javax.resource.cci.ConnectionFactory --property prop1=value1:prop2=value2 eis/
connectionPool
Connector connection pool eis/connectionPool created.

Command create-connector-connection-pool executed successfully.

```

9.1.14.22 delete-connector-connection-pool Subcommand

Synopsis

```
delete-connector-connection-pool [--cascade[=true|=false]] connector_connection_pool_name
```

Description

Deletes the Connector connection pool.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --cascade | None | Determine whether to delete the connector resources associated with the Connector connection pool. 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

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```

C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-connector-connection-pool --cascade=true eis/
connectionPool
Connector connection pool eis/connectionPool deleted.

```

```
Command delete-connector-connection-pool executed successfully.
```

```
Solaris32/64 Linux32/64
```

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-connector-connection-pool --cascade=true eis/connectionPool  
Connector connection pool eis/connectionPool deleted.  
Command delete-connector-connection-pool executed successfully.
```

9.1.14.23 list-connector-connection-pools Subcommand

Synopsis

```
list-connector-connection-pools
```

Description

Lists the connector connection pools.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

```
Windows32/64
```

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-connector-connection-pools  
eis/connectionPool  
Command list-connector-connection-pools executed successfully.
```

```
Solaris32/64 Linux32/64
```

```
/opt/FJSVisje6/glassfish/bin/asadmin list-connector-connection-pools  
eis/connectionPool  
Command list-connector-connection-pools executed successfully.
```

9.1.14.24 create-connector-resource Subcommand

Synopsis

```
create-connector-resource [--target target] --poolname connector_connection_pool_name [--enabled[=true|=false]] [--description text]  
jndi_name
```

Description

Creates the connector resource.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|---------------|---------------|--|
| --target | None | Specify the connector resource reference destination (JServer cluster name or "domain"). The default value is "server". |
| --poolname | None | Specify the name of the connector connection pool. |
| --enabled | None | To block the use of the resource, specify "false". The default value is "true". |
| --description | None | Specify the text that is used for the connector resource description. |

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

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-connector-resource --target IJServer001 --poolname eis/
connectionPool eis/connectionFactory
Connector resource eis/connectionFactory created.
Command create-connector-resource executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVIsje6/glassfish/bin/asadmin create-connector-resource --target IJServer001 --poolname eis/
connectionPool eis/connectionFactory
Connector resource eis/connectionFactory created.
Command create-connector-resource executed successfully.
```

9.1.14.25 delete-connector-resource Subcommand

Synopsis

```
delete-connector-resource [--target target] jndi_name
```

Description

Deletes the connector resource.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --target | None | Specify the connector resource reference destination (IJSERVER cluster name or "domain"). The default value is "server". |

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 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.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "Notes on the asadmin command".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-connector-resource --target IJSERVER001 eis/
connectionFactory
Connector resource eis/connectionFactory deleted.
Command delete-connector-resource executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-connector-resource --target IJSERVER001 eis/connectionFactory
Connector resource eis/connectionFactory deleted.
Command delete-connector-resource executed successfully.
```

9.1.14.26 list-connector-resources Subcommand

Synopsis

list-connector-resources [target]

Description

Lists the connector resources.

For details on the usage and points to be noted on the `asadmin` command, refer also to "9.1 `asadmin`".

For details on the common options, refer to "9.1.2 `asadmin` Command Common Options".

Operands

| Operand name | Omission | Description |
|--------------|----------|---|
| target | Possible | Specify the connector resource reference destination (IJSERVER cluster name, server instance name, or "domain"). The default value is "server". |

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-connector-resources IJSERVER001
eis/connectionFactory
Command list-connector-resources executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-connector-resources IJSERVER001
eis/connectionFactory
Command list-connector-resources executed successfully.
```

9.1.14.27 create-admin-object Subcommand

Synopsis

```
create-admin-object --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 usage and points to be noted on the `asadmin` command, refer also to "9.1 `asadmin`".

For details on the common options, refer to "9.1.2 `asadmin` Command Common Options".

Options

| Option name | Mnemonic name | Description |
|------------------------|---------------|---|
| <code>--restype</code> | None | Specify the resource type of the Admin object resource. |
| <code>--raname</code> | None | Specify the resource adapter name. |
| <code>--enabled</code> | None | To block the use of the resource, specify "false". The default value is "true". |
| <code>--target</code> | None | Specify the admin object resource reference destination (IJSERVER cluster name or "server"). The default value is "server". |

| Option name | Mnemonic name | Description |
|----------------------------|---------------|---|
| | | If the reference destination is added after it is created, use the create-resource-ref subcommand of the <code>asadmin</code> command to specify the reference destination. |
| <code>--description</code> | None | Specify the text that is used for the admin object resource description. |
| <code>--property</code> | None | Specify the config property for the admin object JavaBean instance by separating the "property name=value" pair by a colon (:). |

Operands

| Operand name | Omission | Description |
|------------------------|--------------|--|
| <code>jndi_name</code> | Not possible | Specify the JNDI name for the admin object resource. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the `asadmin` command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-admin-object --restype
com.fujitsu.interstage.AdminObjectIf --raname sampleRar --target IJServer001 --property
prop1=value1:prop2=value2 eis/sampleAdminObject
Administered object eis/sampleAdminObject created.
Command create-admin-object executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVIsje6/glassfish/bin/asadmin create-admin-object --restype com.fujitsu.interstage.AdminObjectIf --
raname sampleRar --target IJServer001 --property prop1=value1:prop2=value2 eis/sampleAdminObject
Administered object eis/sampleAdminObject created.
Command create-admin-object executed successfully.
```

9.1.14.28 delete-admin-object Subcommand

Synopsis

```
delete-admin-object [--target target] jndi_name
```

Description

Deletes the Admin object resource.

For details on the usage and points to be noted on the `asadmin` command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify the admin object resource reference destination (IJSERVER cluster name or "server"). The default value is "server". |

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.
- Using this command, delete the admin object resource before deleting the reference destination IJSERVER cluster.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "Notes on the asadmin command".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-admin-object --target IJSERVER001 eis/sampleAdminObject
Administered object eis/sampleAdminObject deleted.
Command delete-admin-object executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVIsje6/glassfish/bin/asadmin delete-admin-object --target IJSERVER001 eis/sampleAdminObject
Administered object eis/sampleAdminObject deleted.
Command delete-admin-object executed successfully.
```

9.1.14.29 list-admin-objects Subcommand

Synopsis

list-admin-objects [target]

Description

Lists the Admin object resources.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Operands

| Operand name | Omission | Description |
|--------------|----------|---|
| target | Possible | Specify the admin object resource reference destination (JServer cluster name, server instance name, or "server"). The default value is "server". |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-admin-objects IJServer001
eis/sampleAdminObject
Command list-admin-objects executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVIsje6/glassfish/bin/asadmin list-admin-objects IJServer001
eis/sampleAdminObject
Command list-admin-objects executed successfully.
```

9.1.14.30 create-resource-adapter-config Subcommand

Synopsis

create-resource-adapter-config [--threadpoolid threadpool] resource_adapter_name

Description

Creates the resource adapter definition information.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|----------------|---------------|---|
| --threadpoolid | None | Specify the thread pool ID. If this is omitted, the default thread pool that is provided in this product will be used. |

Operands

| Operand name | Omission | Description |
|-----------------------|--------------|------------------------------------|
| resource_adapter_name | Not possible | Specify the resource adapter name. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-resource-adapter-config --threadpoolid threadpool1 sampleRar  
Command create-resource-adapter-config executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJISVisje6/glassfish/bin/asadmin create-resource-adapter-config --threadpoolid threadpool1 sampleRar  
Command create-resource-adapter-config executed successfully.
```

9.1.14.31 delete-resource-adapter-config Subcommand

Synopsis

```
delete-resource-adapter-config resource_adapter_name
```

Description

Deletes the resource adapter definition information.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 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

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to ["Notes on the asadmin command"](#).

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-resource-adapter-config sampleRar
Command delete-resource-adapter-config executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-resource-adapter-config sampleRar
Command delete-resource-adapter-config executed successfully.
```

9.1.14.32 list-resource-adapter-configs Subcommand

Synopsis

list-resource-adapter-configs

Description

Lists the resource adapter definition properties.

For details on the usage and points to be noted on the asadmin command, refer also to ["9.1 asadmin"](#).

For details on the common options, refer to ["9.1.2 asadmin Command Common Options"](#).

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-resource-adapter-configs
ral
sampleRar
Command list-resource-adapter-configs executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-resource-adapter-configs
ral
sampleRar
Command list-resource-adapter-configs executed successfully.
```

9.1.14.33 create-resource-ref Subcommand

Synopsis

create-resource-ref --target target reference_name

Description

Creates the resource reference.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify the resource reference destination (IJSERVER 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

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJSERVER cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJSERVER cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-resource-ref --target IJSERVER001 mail/mail1  
Command create-resource-ref executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-resource-ref --target IJSERVER001 mail/mail1  
Command create-resource-ref executed successfully.
```

9.1.14.34 delete-resource-ref Subcommand

Synopsis

```
delete-resource-ref --target target jndi_name
```

Description

Deletes the resource reference.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify the resource reference destination (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

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJSERVER cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJSERVER cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-resource-ref --target IJSERVER001 mail/mail1  
Command delete-resource-ref executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-resource-ref --target IJSERVER001 mail/mail1  
Command delete-resource-ref executed successfully.
```

9.1.14.35 list-resource-refs Subcommand

Synopsis

```
list-resource-refs [target]
```

Description

Displays the resource reference.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 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 value is "server". |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-resource-refs IJSERVER001
mail/mail1
mail/mail2
Command list-resource-refs executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-resource-refs IJSERVER001
mail/mail1
mail/mail2
Command list-resource-refs executed successfully.
```

9.1.15 Subcommands - Category: Lifecycle Module

9.1.15.1 create-lifecycle-module Subcommand

Synopsis

```
create-lifecycle-module [--target target] --classname classname [--enabled[=true|=false]] [--classpath classpath] [--loadorder loadorder]
[--description description] [--property name=value[:name=value]...] module_name
```

Description

Creates the lifecycle module definition.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --target | None | Specify the IJSERVER cluster name or the Interstage Java EE 6 DAS service instance name ("server") to register the lifecycle module definition. The default value is "server". |
| --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: - show-component-status subcommand |

| Option name | Mnemonic name | Description |
|---------------|---------------|---|
| | | - enable subcommand - disable subcommand |
| --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 the property by separating the "property name=value" pair with 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

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-lifecycle-module --target IJServer001 --classname
"examples.LifecycleListenerImpl" --classpath "c:\export\customSetup" --loadorder 101 --description "this is a
sample customSetup" --property arg1=value1:arg2=value2 customSetup
Command create-lifecycle-module executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-lifecycle-module --target IJServer001 --classname
"examples.LifecycleListenerImpl" --classpath "/export/customSetup" --loadorder 101 --description "this is a
sample customSetup" --property arg1=value1:arg2=value2 customSetup
Command create-lifecycle-module executed successfully.
```

9.1.15.2 delete-lifecycle-module Subcommand

Synopsis

delete-lifecycle-module [--target target] module_name

Description

Deletes the lifecycle module definition.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --target | None | Specify the IJServer cluster name or the Interstage Java EE 6 DAS service instance name ("server") to delete the lifecycle module definition. The default value is "server". |

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

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-lifecycle-module --target IJServer001 customSetup  
Command delete-lifecycle-module executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-lifecycle-module --target IJServer001 customSetup  
Command delete-lifecycle-module executed successfully.
```

9.1.15.3 list-lifecycle-modules Subcommand

Synopsis

list-lifecycle-modules [target]

Description

Lists the lifecycle module definition name.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Operands

| Operand name | Omission | Description |
|--------------|--------------|--|
| target | Not possible | Specify the IJServer cluster name or the Interstage Java EE 6 DAS service instance name ("server"). The default value is "server". |

Return value

0: Ended normally

1: Ended abnormally

Notes

For details on status change (switch between enable and disable) and reference, refer to the following subcommands:

- [show-component-status](#) subcommand
- [enable](#) subcommand
- [disable](#) subcommand

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-lifecycle-modules IJServer001
EJBModule
JDBCModule
Command list-lifecycle-modules executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-lifecycle-modules IJServer001
EJBModule
JDBCModule
Command list-lifecycle-modules executed successfully.
```

9.1.16 Subcommands - Category: System Properties/JVM Options

9.1.16.1 create-system-properties Subcommand

Synopsis

```
create-system-properties [--target target] name=value[:name=value]...
```

Description

Creates the system properties.

System properties created using this command will be in effect after the server instance starts up.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --target | None | Specify the domain, setting name, IJServer cluster name, or server instance name. The default value is "server". If an identical system property is defined more than once, the definition content with the higher priority will be valid. The priority order is as follows: Domain < Setting < IJServer cluster < Server instance |

Operands

| Operand name | Omission | Description |
|--------------|--------------|--|
| name=value | Not possible | If specifying multiple system properties, separate the "property name=value" pairs by a colon (:). |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "Notes on the asadmin command".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-system-properties sampleproperty=default  
Command create-system-properties executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-system-properties sampleproperty=default  
Command create-system-properties executed successfully.
```

In this case, the following system property will be in effect after the Interstage Java EE 6 DAS service starts up:

```
-Dsampleproperty=default
```

9.1.16.2 delete-system-property Subcommand

Synopsis

```
delete-system-property [--target target] property_name
```

Description

Deletes the system property.

System properties deleted using this command will take effect when the server instance starts.

For details on the usage and points to be noted on the `asadmin` command, refer also to ["9.1 asadmin"](#).

For details on the common options, refer to ["9.1.2 asadmin Command Common Options"](#).

Options

| Option name | Mnemonic name | Description |
|-----------------------|---------------|--|
| <code>--target</code> | None | Specify the domain, IJServer cluster name, setting name, or server instance name. The default value is "server". |

Operands

| Operand name | Omission | Description |
|----------------------------|--------------|-----------------------------------|
| <code>property_name</code> | Not possible | Specify the system property name. |

Return value

0: Ended normally

1: Ended abnormally

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to ["Notes on the asadmin command"](#).

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-system-property --target instance001 sampleproperty
Command delete-system-property executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-system-property --target instance001 sampleproperty
Command delete-system-property executed successfully.
```

9.1.16.3 list-system-properties Subcommand

Synopsis

```
list-system-properties [target]
```

Description

Lists the system properties.

For details on the usage and points to be noted on the `asadmin` command, refer also to ["9.1 asadmin"](#).

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Operands

| Operand name | Omission | Description |
|--------------|----------|--|
| target | Possible | <p>Specify the domain, setting name, IJServer cluster name, or server instance name. The default value is "server".</p> <ul style="list-style-type: none"> - Server instance name Displays the system properties that are referenced by the server instance. A list of the reserved system properties used by the server instance is as follows: <ul style="list-style-type: none"> - JMX_SYSTEM_CONNECTOR_PORT - ASADMIN_LISTENER_PORT - HTTP_LISTENER_PORT - IIOP_LISTENER_PORT - IIOP_SSL_LISTENER_PORT - JAVA_DEBUGGER_PORT - OSGI_SHELL_TELNET_PORT - HTTP_SSL_LISTENER_PORT - IIOP_SSL_MUTUALAUTH_PORT <p>If the reserved system property is not displayed when this subcommand is executed, the default value described in "System property" will be used instead of the reserved system property. If "Nothing to list." is displayed, the default values will be used for all reserved system properties. Use the get subcommand to obtain the default value for the reserved system property from the server instance system property. For details, refer to "7.2 Server Instance Definition Items".</p> <ul style="list-style-type: none"> - IJServer cluster name Displays the system properties that are referenced by the IJServer cluster. - Setting name Displays the system properties that are referenced by the setting. - Domain Displays the system properties that are referenced by the domain. <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:

 Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-system-properties instance001
The target instance001 contains following 9 system properties

JMX_SYSTEM_CONNECTOR_PORT=28697
ASADMIN_LISTENER_PORT=24859
HTTP_LISTENER_PORT=28293
IOP_LISTENER_PORT=29701
IOP_SSL_LISTENER_PORT=29821
JAVA_DEBUGGER_PORT=29010
OSGI_SHELL_TELNET_PORT=26667
HTTP_SSL_LISTENER_PORT=28394
IOP_SSL_MUTUALAUTH_PORT=29921
Command list-system-properties executed successfully.
```

[Solaris32/64](#) [Linux32/64](#)

```
/opt/FJSVisje6/glassfish/bin/asadmin list-system-properties instance001
The target instance001 contains following 9 system properties

JMX_SYSTEM_CONNECTOR_PORT=28697
ASADMIN_LISTENER_PORT=24859
HTTP_LISTENER_PORT=28293
IOP_LISTENER_PORT=29701
IOP_SSL_LISTENER_PORT=29821
JAVA_DEBUGGER_PORT=29010
OSGI_SHELL_TELNET_PORT=26667
HTTP_SSL_LISTENER_PORT=28394
IOP_SSL_MUTUALAUTH_PORT=29921
Command list-system-properties executed successfully.
```

If the system property has not been configured, the output result will be as follows:

[Windows32/64](#)

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-system-properties instance001
Nothing to list.
Command list-system-properties executed successfully.
```

[Solaris32/64](#) [Linux32/64](#)

```
/opt/FJSVisje6/glassfish/bin/asadmin list-system-properties instance001
Nothing to list.
Command list-system-properties executed successfully.
```

9.1.16.4 create-jvm-options Subcommand

Synopsis

```
create-jvm-options [--target target] jvm_option_name[=jvm_option_value][:jvm_option_name[=jvm_option_value]]...
```


Description

Creates the Java VM options.

For details on the usage and points to be noted on the `asadmin` command, refer also to "9.1 `asadmin`".

For details on the common options, refer to "9.1.2 `asadmin` Command Common Options"

Options

| Option name | Mnemonic name | Description |
|-----------------------|---------------|---|
| <code>--target</code> | None | Specify the IJServer cluster name, setting name, or Interstage Java EE 6 DAS service instance name ("server"). The default value is "server". |

Operands

| Operand name | Omission | Description |
|------------------------------|--------------|---|
| <code>jvm_option_name</code> | Not possible | Specify the Java VM option. When multiple options are specified, concatenate each option with a colon (:). (:). |

Return value

0: Ended normally

1: Ended abnormally

Notes

- To enable the Java VM option, restart the Interstage Java EE 6 DAS service or IJServer cluster.
- To change the value of a Java VM option that is already defined, use the following procedure:
 1. Delete the current value using the `delete-jvm-options` subcommand.
 2. Create a value using the `create-jvm-options` subcommand.
- The default Java VM options that are defined should not be deleted. For details on the default Java VM options, refer to "Chapter 7 List of Definition Items", "7.7.14 Java VM Definition Items".
- To specify a Java VM option in the operand of this command, escape characters might have to be used. For details, refer to "9.1 `asadmin`", "Using escape characters".
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "Notes on the `asadmin` command".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jvm-options --target IJServer001 \-
Dsamplejvmoption=default
```

```
Created 1 option(s)
```

```
Command create-jvm-options executed successfully.
```

```
/opt/FJSSVisje6/glassfish/bin/asadmin create-jvm-options --target IJServer001 \|-Dsamplejvmoption=default
Created 1 option(s)
Command create-jvm-options executed successfully.
```

9.1.16.5 delete-jvm-options Subcommand

Synopsis

```
delete-jvm-options [--target target] jvm_option_name[=jvm_option_value][:jvm_option_name[=jvm_option_value]]...
```

Description

Deletes the Java VM options.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify the IJServer cluster name, setting name, or Interstage Java EE 6 DAS service instance name ("server"). The default value is "server". |

Operands

| Operand name | Omission | Description |
|-----------------|--------------|--|
| jvm_option_name | Not possible | If specifying multiple options, separate the "option name=value" pairs by a colon (:). |

Return value

0: Ended normally
1: Ended abnormally

Notes

- To enable the deletion of the Java VM option, restart the Interstage Java EE 6 DAS service or IJServer cluster.
- To specify a Java VM option in the operand of this command, escape characters might have to be used. For details, refer to "9.1 asadmin", "Using escape characters".
- The JVM options defined in the default must not be deleted. For details on the default JVM options, refer to "7.7.14 Java VM Definition Items".
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "Notes on the asadmin command".

Example

Execute as follows:

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-jvm-options --target IJServer001 \-
Dsamplejvmoption=default
```

Command delete-jvm-options executed successfully.

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-jvm-options --target IJServer001 \-Dsamplejvmoption=default
```

Command delete-jvm-options executed successfully.

9.1.16.6 list-jvm-options Subcommand

Synopsis

list-jvm-options [--target target]

Description

Lists the Java VM options.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify the IJServer cluster name, setting name, or Interstage Java EE 6 DAS service instance name ("server"). The default value is "server". |

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-jvm-options --target IJServer001
```

```
-XX:MaxPermSize=192m
```

```
~Omitted~
```

Command list-jvm-options executed successfully.

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/bin/asadmin list-jvm-options --target IJServer001
```

```
-XX:MaxPermSize=192m
```

```
~Omitted~
```

Command list-jvm-options executed successfully.

9.1.17 Subcommands - Category: Security

9.1.17.1 change-admin-password Subcommand

Synopsis

change-admin-password

Description

Changes the file realm administrator user password when the file realm is used for admin-realm.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Return value

0: Ended normally

1: Ended abnormally

Notes

- For details on the administrator user and administrator user password, refer to "[5.2.4 Login Authentication](#)".
- Specify a password from 8 to 20 alphanumeric characters.
- For details on notes related to the password, refer to "[1.3.4 Notes on the Java EE 6 Password](#)".
- If automatic restart of the server instance process has been enabled using life-and-death monitoring function, after changing the administrator password, execute the login --pcmi subcommand to update .asadminpass. For details, refer to "[2.5.1 Life-and-death Monitoring of the Java VM Process](#)".

Example

Execute as follows:

Enter the administrator user name, the current password, and the new password twice according to the prompts.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin change-admin-password
Enter admin user name [default: admin]> admin
Enter admin password>
Enter new admin password>
Enter new admin password again>
Command change-admin-password executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin change-admin-password
Enter admin user name [default: admin]> admin
Enter admin password>
Enter new admin password>
Enter new admin password again>
Command change-admin-password executed successfully.
```

9.1.17.2 change-master-password Subcommand

Synopsis

change-master-password [--savemasterpassword[=true|=false]]

Description

Changes the master password.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|----------------------|---------------|--|
| --savemasterpassword | None | <ul style="list-style-type: none"> - When "true" is specified A new file will be created to save the master password, or the file will be created again (Note). In environments in which the start-cluster subcommand is executed, a file must be created to save the master password. For details, refer to "5.2.8 Master Password". - When "false" is specified If the file that will be used to save the master password already exists, it will be deleted. - The default value is "true". |

Note) The file used to save the master password is stored as follows:

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\master-password
[Java EE 6 common directory]\nodes\localhost-domain1\agent\master-password (when the file is created again only)
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/master-password
[Java EE 6 common directory]/nodes/localhost-domain1/agent/master-password (when the file is created again only)
```

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- Before executing this command, stop the following:
 - Interstage Java EE 6 DAS service
 - All IJServer clusters
 - All message brokers
- The master password initial value is "changeit".
- Specify a password from 6 to 20 alphanumeric characters.
- By adding the entry shown below to the file that is specified in the --passwordfile option, the current master password can be specified.

```
AS_ADMIN_MASTERPASSWORD=current master password
```

For details on the --passwordfile option, refer to "9.1.2 asadmin Command Common Options".

- If the master-password file exists, "false" is specified for the --savemasterpassword option, and the asadmin change-master-password subcommand is then executed, the master-password file will be deleted.
- For details on notes related to the password, refer to "1.3.4 Notes on the Java EE 6 Password".

- Multiple instances of this subcommand should not be executed concurrently. Additionally, other subcommands should not be executed at the same time as this subcommand.

Example

Execute as follows:

Enter the current password, and the new password twice, according to the prompts.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin change-master-password --savemasterpassword
Enter the current master password>
Enter the new master password>
Enter the new master password again>
Command change-master-password executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin change-master-password --savemasterpassword
Enter the current master password>
Enter the new master password>
Enter the new master password again>
Command change-master-password executed successfully.
```

9.1.17.3 enable-secure-admin Subcommand

Synopsis

enable-secure-admin

Description

Enables SSL encrypted communication of the asadmin command. It also enables remote debugging.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- Before executing this command, stop the following:
 - All IJServer clusters
 - All message brokers
- This command must be executed while services are not running, except for the PCMI and Interstage Java EE 6 DAS services. Note that the Interstage Java EE 6 DAS service must be restarted immediately after this command is executed.
- If the administrator password has not been configured, the execution of this command will fail.
- If SSL encrypted communication of the asadmin command has been enabled using this command, the server certificate of the host will be used when asadmin is executed. If the .asadmintruststore file does not exist in the user directory, or there is no server certificate for the host that was specified in the .asadmintruststore file, the following message will be output after the asadmin command is executed:

```
Do you trust the above certificate [y|N] -->
```

The .asadmintruststore file is used for saving the server certificate under the user directory. For management operations which use SSL-secured connections, security authentication is executed using this server certificate. Multiple server certificates can be saved in the .asadmintruststore file.

1. When the user enters "y" in the Console, the specified host server certificate is created and the command execution succeeds. Additionally, if the .asadmintruststore file does not exist, it will be created.

Example

```
>asadmin create-cluster cluster002
[
[
Version: V3

Subject: CN=InterstageApplicationServer

Signature Algorithm: SHA256withRSA, OID = 1.2.840.113549.1.1.11

Key: Sun RSA public key, 2048 bits

modulus:
195601459518197948010417769128628550821647216777628890234813811232405032482849779023008881492
172441751431965601028739130903559702842976603895167491633620350105762190228794901805915937433
998449368169433395098336611246021203460407054863125798952261008105417997445726568189152879373
695682577148498178386808389344342496196672449988924332256341041151927305739396599982617553613
431769849742269708216896054512340051050547642842711763365197573463747132758610900681205842227
874450071039975023766235185737930375552116940205964683795205216805557348029378220409797648042
46380191706946226564730034821615198942184770904592776543343

public exponent: 65537

Validity: [From: Thu Mar 28 18:54:15 JST 2013,
          To: Sun Mar 26 18:54:15 JST 2023]

Issuer: CN=InterstageApplicationServer

SerialNumber: [ 0c8c92ba]

Certificate Extensions: 1

[1]: ObjectId: 2.5.29.14 Criticality=false

SubjectKeyIdentifier [

KeyIdentifier [

0000: 99 1D 06 B3 E6 4A F6 54 55 BB D6 C3 A4 7F 50 82 .....J.TU.....P.

0010: DC 57 AA 06 .W..

]

]

]

Algorithm: [SHA256withRSA]
```

Signature:

```
0000: 6B ED 08 FF 27 EA F3 69 C0 EC 7D B0 74 58 B2 C5 k...'..i....tX..
0010: D6 04 F9 DA ED 31 F4 05 B3 93 58 4C 33 B0 6F BE .....1....XL3.o.
0020: 2A 1D 99 A3 A7 3C 45 B7 E6 84 E6 C8 21 CD 57 34 *....<E.....!.W4
0030: 8F 04 C7 82 8F A9 DF 7F 98 E8 A1 89 4E 98 53 41 .....N.SA
0040: F9 24 EE 19 34 C4 80 B7 DB 50 80 92 A2 D6 4C 75 .$..4....P....Lu
0050: A2 D4 39 69 9C 4D A1 52 74 C2 A8 08 B9 19 43 CC ..9i.M.Rt.....C.
0060: F4 0C 69 F5 0B B3 29 7C 79 B2 E9 12 32 2D 4E 2D ..i....).y...2-N-
0070: 7D 24 41 A4 BF 0D 54 26 0C 2F D2 5F 44 D6 73 7E .$A...T&./._D.s.
0080: F9 95 89 36 BA 77 15 35 F9 5B 6D A3 66 CE C1 64 ...6.w.5.[m.f..d
0090: 14 40 39 03 77 C6 60 16 41 22 86 D1 AD B5 2A 5D .@9.w.`.A"....*]
00A0: C2 7F 88 9A 2B F8 E0 8E DE A8 9C 5B 30 F3 CD C8 ....+.....[0...
00B0: 73 C5 80 72 F8 33 A9 8D 71 56 41 B1 D1 3B 3C D7 s..r.3..qVA..;<.
00C0: 57 05 D7 48 E7 6C 56 E5 80 11 42 49 02 06 BB 01 W..H.lV...BI....
00D0: DA 06 54 BB 66 9A 53 EE 08 C2 AF D2 86 5A 10 0E ..T.f.S.....Z..
00E0: AB F8 A2 C6 64 8A B5 A8 51 12 A7 34 1B 70 5F D9 ....d...Q..4.p_.
00F0: 8B 2E 5E 24 F7 AD 72 0B 27 FD AD A3 E7 30 02 99 ..^$.r.'....0..
```

]

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 is output and the command execution fails.

Example

.....

```
>asadmin create-cluster cluster003
```

```
[
```

```
[
```

```
Version: V3
```

```
Subject: CN=InterstageApplicationServer
```

```
Signature Algorithm: SHA256withRSA, OID = 1.2.840.113549.1.1.11
```

```
Key: Sun RSA public key, 2048 bits
```

```
modulus:
```

```
195601459518197948010417769128628550821647216777628890234813811232405032482849779023008881492
172441751431965601028739130903559702842976603895167491633620350105762190228794901805915937433
998449368169433395098336611246021203460407054863125798952261008105417997445726568189152879373
```


695682577148498178386808389344342496196672449988924332256341041151927305739396599982617553613
431769849742269708216896054512340051050547642842711763365197573463747132758610900681205842227
874450071039975023766235185737930375552116940205964683795205216805557348029378220409797648042
46380191706946226564730034821615198942184770904592776543343

public exponent: 65537

Validity: [From: Thu Mar 28 18:54:15 JST 2013,

To: Sun Mar 26 18:54:15 JST 2023]

Issuer: CN=InterstageApplicationServer

SerialNumber: [0c8c92ba]

Certificate Extensions: 1

[1]: ObjectId: 2.5.29.14 Criticality=false

SubjectKeyIdentifier [

KeyIdentifier [

0000: 99 1D 06 B3 E6 4A F6 54 55 BB D6 C3 A4 7F 50 82J.TU....P.

0010: DC 57 AA 06 .W..

]

]

]

Algorithm: [SHA256withRSA]

Signature:

0000: 6B ED 08 FF 27 EA F3 69 C0 EC 7D B0 74 58 B2 C5 k...'..i....tX..

0010: D6 04 F9 DA ED 31 F4 05 B3 93 58 4C 33 B0 6F BE1....XL3.o.

0020: 2A 1D 99 A3 A7 3C 45 B7 E6 84 E6 C8 21 CD 57 34 *....<E.....!W4

0030: 8F 04 C7 82 8F A9 DF 7F 98 E8 A1 89 4E 98 53 41N.SA

0040: F9 24 EE 19 34 C4 80 B7 DB 50 80 92 A2 D6 4C 75 ..\$.4....P....Lu

0050: A2 D4 39 69 9C 4D A1 52 74 C2 A8 08 B9 19 43 CC ..9i.M.Rt.....C.

0060: F4 0C 69 F5 0B B3 29 7C 79 B2 E9 12 32 2D 4E 2D ..i....).y...2-N-

0070: 7D 24 41 A4 BF 0D 54 26 0C 2F D2 5F 44 D6 73 7E .\$A...T&./.._D.s.

0080: F9 95 89 36 BA 77 15 35 F9 5B 6D A3 66 CE C1 64 ...6.w.5.[m.f..d

0090: 14 40 39 03 77 C6 60 16 41 22 86 D1 AD B5 2A 5D .@9.w.`.A"....*]

00A0: C2 7F 88 9A 2B F8 E0 8E DE A8 9C 5B 30 F3 CD C8+.....[0...

00B0: 73 C5 80 72 F8 33 A9 8D 71 56 41 B1 D1 3B 3C D7 s..r.3..qVA..i;<.

00C0: 57 05 D7 48 E7 6C 56 E5 80 11 42 49 02 06 BB 01 W..H.lV...BI....

```
00D0: DA 06 54 BB 66 9A 53 EE 08 C2 AF D2 86 5A 10 0E ..T.f.S.....Z..
00E0: AB F8 A2 C6 64 8A B5 A8 51 12 A7 34 1B 70 5F D9 ....d...Q..4.p_.
00F0: 8B 2E 5E 24 F7 AD 72 0B 27 FD AD A3 E7 30 02 99 ..^$.r.'....0..
```

```
]
```

```
Do you trust the above certificate [y|N] -->n
```

```
javax.net.ssl.SSLHandshakeException: java.security.cert.CertificateException: The
certificate chain from the server is not trusted
```

```
Command delete-cluster failed.
```

```
.....
```

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin enable-secure-admin
```

You must restart all running servers for the change in secure admin to take effect.

Command enable-secure-admin executed successfully.

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin enable-secure-admin
```

You must restart all running servers for the change in secure admin to take effect.

Command enable-secure-admin executed successfully.

9.1.17.4 disable-secure-admin Subcommand

Synopsis

```
disable-secure-admin
```

Description

Disables SSL encrypted communication of the asadmin command. It also disables remote debugging.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Return value

0: Ended normally

1: Ended abnormally

Notes

- Before executing this command, stop the following:
 - All IJServer clusters
 - All message brokers
- This command must be executed while services are not running, except for the PCMI and Interstage Java EE 6 DAS services are not running. Note that the Interstage Java EE 6 DAS service must be restarted immediately after this command is executed.

- If the administrator password has not been configured, the execution of this command will fail.

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin disable-secure-admin
You must restart all running servers for the change in secure admin to take effect.
Command disable-secure-admin executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin disable-secure-admin
You must restart all running servers for the change in secure admin to take effect.
Command disable-secure-admin executed successfully.
```

9.1.17.5 create-connector-security-map Subcommand

Synopsis

```
create-connector-security-map --poolname connector_connection_pool_name [--principals principal_name1[,principal_name2]...] [--usergroups usergroup_name1[,usergroup_name2]...] --mappedusername username security_map_name
```

Description

Creates the security map.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|------------------|---------------|--|
| --poolname | None | Specify the name of the connector connection pool. |
| --principals | None | Specify the Principal. To specify multiple Principals, separate each one with a comma (","). |
| --usergroups | None | Specify a user group. To specify multiple user groups, separate each one with a comma (","). |
| --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

- By adding the entry below to the file specified in the --passwordfile option, it is possible to specify a password for the security map Backend Principal that is to be created.

```
AS_ADMIN_MAPPEDPASSWORD=password
```

For details on the --passwordfile option, refer to "[9.1.2 asadmin Command Common Options](#)".

- Either --principals or --usergroups must be specified. The command will fail if neither or both are specified.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin --passwordfile C:\temp\password.txt create-connector-security-map --poolname eis/connectionPool --principals principal1,principal2 --mappedusername backendPrincipal securityMap  
Command create-connector-security-map executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin --passwordfile /temp/password.txt create-connector-security-map --poolname eis/connectionPool --principals principal1,principal2 --mappedusername backendPrincipal securityMap  
Command create-connector-security-map executed successfully.
```

9.1.17.6 delete-connector-security-map Subcommand

Synopsis

```
delete-connector-security-map --poolname connector_connection_pool_name security_map_name
```

Description

Deletes the security map.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --poolname | 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

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- All Java EE 6 environment server instances

For this reason, the execution result for all Java EE 6 environment server instances is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-connector-security-map --poolname eis/connectionPool
securityMap
Command delete-connector-security-map executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-connector-security-map --poolname eis/connectionPool
securityMap
Command delete-connector-security-map executed successfully.
```

9.1.17.7 update-connector-security-map Subcommand

Synopsis

```
update-connector-security-map --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

Updates the security map.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-----------------|---------------|---|
| --poolname | None | Specify the name of the connector connection pool. |
| --addprincipals | None | Specify the Principal to be added. To specify multiple Principals, separate each one with a comma (","). If this option is omitted, the Principal will not be added. |

| Option name | Mnemonic name | Description |
|--------------------|---------------|--|
| --addusergroups | None | Specify the user group to be added. To specify multiple user groups, separate each one with a comma (","). If this option is omitted, the user group will not be added. |
| --removeprincipals | None | Specify the Principal to be deleted. To specify multiple Principals, separate each one with a comma (","). If this option is omitted, the Principal will not be deleted. |
| --removeusergroups | None | Specify the user group to be deleted. To specify multiple user groups, separate each one with a comma (","). If this option is omitted, the user group will not be deleted. |
| --mappedusername | None | Specify the user name of the Backend Principal. If this option is omitted, the Backend Principal user name will not be updated. |

Operands

| Operand name | Omission | Description |
|-------------------|--------------|--------------------------------|
| security_map_name | Not possible | Specify the security map name. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- By adding the entry below to the file specified in the --passwordfile option, it is possible to update the password for the security map Backend Principal.

```
AS_ADMIN_MAPPEDPASSWORD=password
```

For details on the --passwordfile option, refer to "9.1.2 asadmin Command Common Options".

- The command will fail if both --addprincipals and --addusergroups are specified.
- The command will fail if the same Principal is specified in --addprincipals and --removeprincipals..
- The command will fail if the same user group is specified in --addusergroups and --removeusergroups.
- The command will fail if a Principal already registered in the security is specified in --addprincipals.
- The command will fail if a user group already registered in the security map is specified in --addusergroups.

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin --passwordfile C:\temp\password.txt update-connector-security-map --poolname eis/connectionPool --addprincipals principal1,principal2 --mappedusername backendPrincipal securityMap
Command update-connector-security-map executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin --passwordfile /temp/password.txt update-connector-security-map --poolname eis/connectionPool --addprincipals principal1,principal2 --mappedusername backendPrincipal securityMap  
Command update-connector-security-map executed successfully.
```

9.1.17.8 list-connector-security-maps Subcommand

Synopsis

list-connector-security-maps connector_connection_pool_name

Description

Lists the security maps.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

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:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-connector-security-maps eis/connectionPool  
securityMap1  
securityMap2  
Command list-connector-security-maps executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-connector-security-maps eis/connectionPool  
securityMap1  
securityMap2  
Command list-connector-security-maps executed successfully.
```

9.1.17.9 create-password-alias Subcommand

Synopsis

create-password-alias aliasname

Description

Creates 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.

- [set subcommand](#) of the asadmin command

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 will be displayed. Enter the password then.

```
Please enter the alias password
```

For details on the usage and points to be noted on the `asadmin` command, refer also to "9.1 `asadmin`".

For details on the common options, refer to "9.1.2 `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

- By adding the entry below to the file specified in the `--passwordfile` option, it is possible to specify a password for the password alias to be created. If this entry is not added, the user will be prompted for the password.

```
AS_ADMIN_ALIASPASSWORD=password
```

For details on the `--passwordfile` option, refer to "9.1.2 `asadmin` Command Common Options".

- The password entered in the prompt will not be displayed.
- Whether case-sensitivity applies for the password alias will depend on the Java implementation. To avoid problems, use only lowercase.
- Multiple instances of this subcommand should not be executed concurrently. Additionally, other subcommands should not be executed at the same time as this subcommand.

Example

Execute as follows:

```
Windows32/64
```

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-password-alias alias1
Please enter the alias password>
Please enter the alias password again>
Command create-password-alias executed successfully.
```

To set up the password alias for the "securityMap" security map, which was defined for the "eis/connectionPool" connection pool beforehand, execute as shown below. Accordingly, the password that is written in the definition file, or displayed in the `asadmin` `get` subcommand, for example, can be hidden.

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set --user admin
resources.connector-connection-pool.eis/connectionPool.security-map.securityMap.backend-
principal.password=${ALIAS=alias1}
```

```
Solaris32/64 Linux32/64
```

```
/opt/FJSVisje6/glassfish/bin/asadmin create-password-alias alias1
Please enter the alias password>
```



```
Please enter the alias password again>
Command create-password-alias executed successfully.
```

To set up the password alias for the "securityMap" security map, which has already been defined for the "eis/connectionPool" connection pool beforehand, execute as shown below. Accordingly, the password that is written in the definition file, or displayed in the asadmin get subcommand, for example, can be hidden.

```
/opt/FJSVisje6/glassfish/bin/asadmin set --user admin
resources.connector-connection-pool.eis/connectionPool.security-map.securityMap.backend-
principal.password=\${ALIAS=alias1}
```

9.1.17.10 delete-password-alias Subcommand

Synopsis

```
delete-password-alias aliasname
```

Description

Deletes the password alias.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 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

Multiple instances of this subcommand should not be executed concurrently. Additionally, other subcommands should not be executed at the same time as this subcommand.

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-password-alias alias1
Command delete-password-alias executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-password-alias alias1
Command delete-password-alias executed successfully.
```

9.1.17.11 list-password-aliases Subcommand

Synopsis

```
list-password-aliases
```

Description

Lists the password aliases.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-password-aliases
alias1
alias2
Command list-password-aliases executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FISVisje6/glassfish/bin/asadmin list-password-aliases
alias1
alias2
Command list-password-aliases executed successfully.
```

9.1.17.12 update-password-alias Subcommand

Synopsis

update-password-alias aliasname

Description

Updates the password alias.

When the command is executed, the following prompt will be displayed. Enter the password.

```
Please enter the alias password
```

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 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

- By adding the entry below to the file specified in the --passwordfile option, it is possible to update the password for the password alias.

```
AS_ADMIN_ALIASPASSWORD=password
```

For details on the --passwordfile option, refer to "[9.1.2 asadmin Command Common Options](#)".

- The password entered in the prompt will not be displayed.
- Multiple instances of this subcommand should not be executed concurrently. Additionally, other subcommands should not be executed at the same time as this subcommand.

Example

Execute as follows:

```
Windows32/64
```

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin update-password-alias alias1
Please enter the alias password>
Please enter the alias password again>
Command update-password-alias executed successfully.
```

```
Solaris32/64 Linux32/64
```

```
/opt/FJSVisje6/glassfish/bin/asadmin update-password-alias alias1
Please enter the alias password>
Please enter the alias password again>
Command update-password-alias executed successfully.
```

9.1.17.13 create-auth-realm Subcommand

Synopsis

```
create-auth-realm --classname realm_class [--property name=value[:name=value]...] [--target target] auth_realm_name
```

Description

Adds the realm for the specified authentication method.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --classname | None | Specify the implementation class of the realm: <ul style="list-style-type: none">- To create the file realm com.sun.enterprise.security.auth.realm.file.FileRealm If this is omitted, the user will be prompted for the class. |
| --property | None | Specify "realm additional property". For details on the properties, refer to " 7.7.12 Security Definition Items ". |
| --target | None | Specify one of the following values. The default value is "server". <ul style="list-style-type: none">- Setting name |

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| | | <ul style="list-style-type: none"> - IJServer cluster name - Interstage Java EE 6 DAS service instance name ("server") |

Operands

| Operand name | Omission | Description |
|-----------------|--------------|--|
| auth_realm_name | Not possible | Specify the realm name. If omitted, the user will be prompted for the realm name. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- To use the file realm, jaas-context and file must be specified in the --property option, as shown in the example below. If these are not specified, the file realm cannot be created.
- To use the realm in common with the Interstage Java EE 6 DAS service or the IJServer cluster, the --target option must be specified in the asadmin create-auth-realm subcommand for each Interstage Java EE 6 DAS service or IJServer cluster.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-auth-realm --classname
com.sun.enterprise.security.auth.realm.file.FileRealm
--property jaas-context=fileRealm:file=${com.sun.aas.instanceRoot}/config/newkeyfile --target IJServer001
fileRealm
Command create-auth-realm executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-auth-realm --classname
com.sun.enterprise.security.auth.realm.file.FileRealm
--property jaas-context=fileRealm:file=${com.sun.aas.instanceRoot}/config/newkeyfile --target IJServer001
fileRealm
Command create-auth-realm executed successfully.
```

9.1.17.14 delete-auth-realm Subcommand

Synopsis

```
delete-auth-realm [--target target] auth_realm_name
```

Description

Deletes the specified realm.

For details on the usage and points to be noted on the `asadmin` command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-----------------------|---------------|--|
| <code>--target</code> | None | Specify one of the following values. The default value is "server". <ul style="list-style-type: none">- Setting name- IJServer cluster name- Interstage Java EE 6 DAS service instance name ("server") |

Operands

| Operand name | Omission | Description |
|------------------------------|--------------|--|
| <code>auth_realm_name</code> | Not possible | Specify the realm name. If omitted, the user will be prompted for the realm name. |

Return value

0: Ended normally

1: Ended abnormally

Notes

When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-auth-realm --target IJServer001 fileRealm
Command delete-auth-realm executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-auth-realm --target IJServer001 fileRealm
Command delete-auth-realm executed successfully.
```

9.1.17.15 list-auth-realms Subcommand

Synopsis

```
list-auth-realms [target]
```

Description

Lists the target realm that was specified in the operand.

For details on the usage and points to be noted on the `asadmin` command, refer also to "9.1 `asadmin`".

For details on the common options, refer to "9.1.2 `asadmin` Command Common Options".

Operands

| Operand name | Omission | Description |
|--------------|----------|---|
| target | Possible | Specify one of the following values. The default value is "server". <ul style="list-style-type: none">- Setting name- IJServer cluster name- Server instance name- Interstage Java EE 6 DAS service instance name ("server") |

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-auth-realms IJServer001
admin-realm
file
certificate
Command list-auth-realms executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVIsje6/glassfish/bin/asadmin list-auth-realms IJServer001
admin-realm
file
certificate
Command list-auth-realms executed successfully.
```

9.1.17.16 create-file-user Subcommand

Synopsis

```
create-file-user [--groups user_groups[:user_groups]...] [--authrealmname authrealm_name] [--target target] username
```

Description

Creates the file realm of the user.

For details on the usage and points to be noted on the `asadmin` command, refer also to "9.1 `asadmin`".

For details on the common options, refer to "9.1.2 `asadmin` Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-----------------|---------------|--|
| --groups | None | Specify the groups that the user belongs to. (*1) To specify multiple groups, separate each one with a colon (":"). If omitted, the groups will not be set. |
| --authrealmname | None | Specify the file realm name. Specify the name of the realm that was set as the file realm. If omitted, the default realm is used. For details on the default realm, refer to " 5.4.4 Default Realm Settings ". |
| --target | None | Specify one of the following values. The default value is "server". <ul style="list-style-type: none"> - Setting name - IJServer cluster name - Interstage Java EE 6 DAS service instance name ("server") |

*1 For details, refer to "[5.4.5 Managing File Realm Users and Groups](#)"

Operands

| Operand name | Omission | Description |
|--------------|--------------|---|
| username | Not possible | Specify the user name. (*1) If omitted, the user will be prompted for the user name. |

*1 For details, refer to "[5.4.5 Managing File Realm Users and Groups](#)"

Return value

0: Ended normally
1: Ended abnormally

Notes

- By adding the entry below to the file specified in the --passwordfile option, it is possible to specify a password for the file realm user to be created. If this entry is not added, the user will be prompted for the password.

```
AS_ADMIN_USERPASSWORD=password
```

For details on the --passwordfile option, refer to "[9.1.2 asadmin Command Common Options](#)".

- The password entered in the prompt will not be displayed.
- For details on the password set, refer to "[5.4.5 Managing File Realm Users and Groups](#)".
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

- To update these changes, it may be necessary to perform the synchronization manually. For details, refer to "[2.1.4 Repository Synchronization](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-file-user --target IJServer001 user1
Enter the user password>
Enter the user password again>
Command create-file-user executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-file-user --target IJServer001 user1
Enter the user password>
Enter the user password again>
Command create-file-user executed successfully.
```

9.1.17.17 delete-file-user Subcommand

Synopsis

```
delete-file-user [--authrealmname authrealm_name] [--target target] username
```

Description

Deletes the file realm user.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-----------------|---------------|--|
| --authrealmname | None | Specify the file realm name. Specify the name of the realm that was set as the file realm. If omitted, the default realm is used. |
| --target | None | Specify one of the following values. The default value is "server". <ul style="list-style-type: none">- Setting name- IJServer cluster name- Interstage Java EE 6 DAS service instance name ("server") |

Operands

| Operand name | Omission | Description |
|--------------|--------------|--|
| username | Not possible | Specify the user name. If omitted, the user will be prompted for the user name. |

Return value

0: Ended normally

1: Ended abnormally

Notes

- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to ["Notes on the asadmin command"](#).

- To update these changes, it may be necessary to perform the synchronization manually. For details, refer to ["2.1.4 Repository Synchronization"](#).

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-file-user --target IJServer001 user1
Command delete-file-user executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-file-user --target IJServer001 user1
Command delete-file-user executed successfully.
```

9.1.17.18 update-file-user Subcommand

Synopsis

```
update-file-user [--groups user_groups[:user_groups]...] [--authrealmname authrealm_name] [--target target] username
```

Description

Updates the file realm user.

For details on the usage and points to be noted on the asadmin command, refer also to ["9.1 asadmin"](#).

For details on the common options, refer to ["9.1.2 asadmin Command Common Options"](#).

Options

| Option name | Mnemonic name | Description |
|-----------------|---------------|---|
| --groups | None | Specify the groups that the user belongs to. (*1) To specify multiple groups, separate each one with a colon (":"). If omitted, the groups will not be updated. |
| --authrealmname | None | Specify the file realm name. Specify the name of the realm that was set as the file realm. If omitted, the default realm is used. For details on the default realm, refer to "5.4.4 Default Realm Settings" . |
| --target | None | Specify one of the following values. The default value is "server". <ul style="list-style-type: none">- Setting name- IJServer cluster name- Interstage Java EE 6 DAS service instance name ("server") |

*1 For details, refer to ["5.4.5 Managing File Realm Users and Groups"](#)

Operands

| Operand name | Omission | Description |
|--------------|--------------|---|
| username | Not possible | Specify the user name. (*1) If omitted, the user will be prompted for the user name. |

*1 For details, refer to "[5.4.5 Managing File Realm Users and Groups](#)"

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- To update the file realm user password, add the entry below to the file specified in the --passwordfile option:

```
AS_ADMIN_USERPASSWORD=password
```

For details on the --passwordfile option, refer to "[9.1.2 asadmin Command Common Options](#)".

- For details on the password set, refer to "[5.4.5 Managing File Realm Users and Groups](#)".
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

- To update these changes, it may be necessary to perform the synchronization manually. For details, refer to "[2.1.4 Repository Synchronization](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin --passwordfile c:\temp\password.txt update-file-user --groups group1 --target IJServer001 user1  
Command update-file-user executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin --passwordfile /tmp/password.txt update-file-user --groups group1 --target IJServer001 user1  
Command update-file-user executed successfully.
```

9.1.17.19 list-file-users Subcommand

Synopsis

```
list-file-users [--authrealmname authrealm_name] [target]
```

Description

Lists the file realm users.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-----------------|---------------|---|
| --authrealmname | None | Specify the name of the realm that was set as the file realm. If omitted, the default realm is used. |

Operands

| Operand name | Omission | Description |
|--------------|----------|---|
| target | Possible | Specify one of the following values. The default value is "server". <ul style="list-style-type: none">- Setting name- IJServer cluster name- Server instance name- Interstage Java EE 6 DAS service instance name ("server") |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-file-users IJServer001
user1
user2
Command list-file-users executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-file-users IJServer001
user1
user2
Command list-file-users executed successfully.
```

9.1.17.20 list-file-groups Subcommand

Synopsis

```
list-file-groups [--name username] [--authrealmname authrealm_name] [target]
```

Description

Lists the file realm groups.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-----------------|---------------|--|
| --name | None | Specify the file realm user. If this option is specified, the groups to which the specified user belongs are listed. If this option is omitted, the groups that exist in the file realm that was specified in the --authrealmname option (if this file realm is omitted, the default realm will be used instead) are listed. |
| --authrealmname | None | Specify the name of the realm that was set as the file realm. If omitted, the default realm is used. |

Operands

| Operand name | Omission | Description |
|--------------|----------|---|
| target | Possible | Specify one of the following values. The default value is "server". <ul style="list-style-type: none"> - Setting name - IJServer cluster name - Server instance name - Interstage Java EE 6 DAS service instance name ("server") |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-file-groups IJServer001
list-file-groups successful
file-group : group1
file-group : group2
Command list-file-groups executed successfully.
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/bin/asadmin list-file-groups IJServer001
list-file-groups successful
file-group : group1
file-group : group2
Command list-file-groups executed successfully.
```

9.1.18 Subcommands - Category: Database Operations

9.1.18.1 start-database Subcommand

Synopsis

```
start-database [--dbhost hostname] [--dbport number] [--dbhome directory]
```

Description

Starts the Java DB (client/server environment).

For details on the usage and points to be noted on the `asadmin` command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-----------------------|---------------|---|
| <code>--dbhost</code> | None | Specify the Java DB host name or IP address. The default value is 0.0.0.0. |
| <code>--dbport</code> | None | Specify the Java DB port number. The default value is 1527. |
| <code>--dbhome</code> | None | Specify the Java DB system directory. For details on the default Java DB system directory, refer to " A.3 Java DB System Directory ". |

Return value

0: Ended normally

1: Ended abnormally

Notes

Multiple instances of this subcommand should not be executed concurrently. Additionally, other subcommands should not be executed at the same time as this subcommand.

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin start-database --dbhost 0.0.0.0 --dbport 1527
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin start-database --dbhost 0.0.0.0 --dbport 1527
```

9.1.18.2 stop-database Subcommand

Synopsis

```
stop-database [--dbhost hostname] [--dbport number]
```

Description

Stops the Java DB (client/server environment).

For details on the usage and points to be noted on the `asadmin` command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --dbhost | None | Specify the Java DB host name or IP address. The default value is 0.0.0.0. |
| --dbport | None | Specify the Java DB port number. The default value is 1527. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

Multiple instances of this subcommand should not be executed concurrently. Additionally, other subcommands should not be executed at the same time as this subcommand.

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin stop-database --dbhost 0.0.0.0 --dbport 1527
Command stop-database executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin stop-database --dbhost 0.0.0.0 --dbport 1527
Command stop-database executed successfully.
```

9.1.19 Subcommands - Category: Log

9.1.19.1 set-log-attributes Subcommand

Synopsis

```
set-log-attributes [--target target] attribute-name=attribute-value[:attribute-name=attribute-value]...
```

Description

Sets the log attribute for one or multiple loggers.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify one of the following values. The default value is "server". <ul style="list-style-type: none"> - server - IJServer cluster name - Setting name |

Operands

| Operand name | Omission | Description |
|----------------|--------------|---|
| attribute-name | Not possible | <p>Specify a value of the log attribute full scope name.</p> <p>When multiple log attributes are specified, concatenate the "log attribute=value" pair with a colon (:).</p> <p>The attributes shown below are supported.</p> <ul style="list-style-type: none">- com.sun.enterprise.server.logging.GFFileHandler.directory- com.sun.enterprise.server.logging.GFFileHandler.rotationPolicy- com.sun.enterprise.server.logging.GFFileHandler.rotationTime- com.sun.enterprise.server.logging.GFFileHandler.maxHistoryFiles- com.sun.enterprise.server.logging.GFFileHandler.rotationLimitInBytes- handlers <p>For details on the values set, refer to "7.7.11 Logger Definition Items".</p> <p>If FileHandler is specified in the handlers attribute, tuning is possible using the following attributes:</p> <ul style="list-style-type: none">- java.util.logging.FileHandler.count- java.util.logging.FileHandler.limit- java.util.logging.FileHandler.pattern <p>For details on the Java logging API and FileHandler, refer to the JDK document Java logging specification.</p> |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- Do not change the parts, except for the attribute defined in the attribute-name description.
- For the attribute that is defined in the application (logger name and custom log handler definition), specify an attribute name that starts with a specific package name that is used in the application.
- To output logs from the application, properties can be configured except the following:
 - Properties that end with .level
 - Root logger properties
 - Properties that change the behavior of loggers whose names begin with the following strings:
 - apiscan
 - backup
 - com.fujitsu.interstage.javaee
 - com.sun
 - enterprise.system.jaspic.security
 - global
 - grizzly
 - Grizzly

- Http Tunneling
 - javax
 - Jersey-Monitoring
 - JxtaMgmt
 - MBeans
 - naming
 - net.jxta
 - oa
 - orb
 - orbd
 - org.apache.catalina
 - org.apache.jasper
 - org.apache.jk
 - org.apache.naming
 - org.apache.tomcat
 - org.eclipse.persistence
 - org.glassfish
 - org.jvnet
 - org.shoal
 - ReplicationLogger
 - rmiiop
 - rpc
 - ServiceLoader
 - ShoalLogger
 - ums.service
 - util
 - WebAppAdapter
 - WebappLoader
 - websocket
 - wstx
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".
 - To update these changes, it may be necessary to perform the synchronization manually. For details, refer to "[2.1.4 Repository Synchronization](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set-log-attributes
handlers=java.util.logging.ConsoleHandler,java.util.logging.FileHandler
handlers logging attribute set with value java.util.logging.ConsoleHandler,java.util.logging.FileHandler.
These logging attributes are set for server.
Command set-log-attributes executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin set-log-attributes handlers=java.util.logging.ConsoleHandler,java.util.logging.FileHandler
handlers logging attribute set with value java.util.logging.ConsoleHandler,java.util.logging.FileHandler.
These logging attributes are set for server.
Command set-log-attributes executed successfully.
```

To configure multiple attributes in one pass, execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set-log-attributes
com.sun.enterprise.server.logging.GFFileHandler.maxHistoryFiles=5:
com.sun.enterprise.server.logging.GFFileHandler.rotationLimitInBytes=2097152
com.sun.enterprise.server.logging.GFFileHandler.rotationLimitInBytes logging attribute set with value 2097152.
com.sun.enterprise.server.logging.GFFileHandler.maxHistoryFiles logging attribute set with value 5.
These logging attributes are set for server.
Command set-log-attributes executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin set-log-attributes com.sun.enterprise.server.logging.GFFileHandler.maxHistoryFiles=5:
com.sun.enterprise.server.logging.GFFileHandler.rotationLimitInBytes=2097152
com.sun.enterprise.server.logging.GFFileHandler.rotationLimitInBytes logging attribute set with value 2097152.
com.sun.enterprise.server.logging.GFFileHandler.maxHistoryFiles logging attribute set with value 5.
These logging attributes are set for server.
Command set-log-attributes executed successfully.
```

9.1.19.2 delete-log-attributes Subcommand

Synopsis

```
delete-log-attributes [--target target] attribute-name[:attribute-name]...
```

Description

Deletes the log attribute for one or more loggers.

For details on the usage and points to be noted on the `asadmin` command, refer also to ["9.1 asadmin"](#).

For details on the common options, refer to ["9.1.2 asadmin Command Common Options"](#).

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --target | None | Specify one of the following values. The default value is "server". <ul style="list-style-type: none">- server- IJServer cluster name |

| Option name | Mnemonic name | Description |
|-------------|---------------|----------------|
| | | - Setting name |

Operands

| Operand name | Omission | Description |
|----------------|--------------|--|
| attribute-name | Not possible | Specify a value for the full scope name of the log attribute to be deleted. When multiple log attributes are specified, concatenate them with a colon (:). |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- The following log attributes cannot be deleted:
 - com.sun.enterprise.server.logging.GFFileHandler.directory
 - com.sun.enterprise.server.logging.GFFileHandler.rotationPolicy
 - com.sun.enterprise.server.logging.GFFileHandler.rotationTime
 - java.util.logging.FileHandler.limit
 - com.sun.enterprise.server.logging.GFFileHandler.rotationLimitInBytes
 - java.util.logging.FileHandler.count
 - com.sun.enterprise.server.logging.GFFileHandler.maxHistroyFiles
 - java.util.logging.FileHandler.pattern
 - Log attributes that end with .level (the reason is that the log level is deleted by the delete-log-levels subcommand)
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".
- To update these changes, it may be necessary to perform the synchronization manually. For details, refer to "[2.1.4 Repository Synchronization](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-log-attributes jp.example.handlers
These logging attributes are deleted for server.
Command delete-log-attributes executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-log-attributes jp.example.handlers
These logging attributes are deleted for server.
Command delete-log-attributes executed successfully.
```

9.1.19.3 list-log-attributes Subcommand

Synopsis

list-log-attributes [target]

Description

Lists all defined log attributes.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Operands

| Operand name | Omission | Description |
|--------------|----------|---|
| target | Possible | Specify one of the following values. The default value is "server". <ul style="list-style-type: none">- server- IJServer cluster name- Setting name |

Return value

0: Ended normally
1: Ended abnormally

Example

Execute as follows:

[Windows32/64](#)

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-log-attributes
com.sun.enterprise.server.logging.GFFileHandler.directory <${com.sun.aas.instanceRoot}/logs>
com.sun.enterprise.server.logging.GFFileHandler.file <server.log>
com.sun.enterprise.server.logging.GFFileHandler.flushFrequency <1>
com.sun.enterprise.server.logging.GFFileHandler.formatter
<com.fujitsu.interstage.javaee.logging.manager.ISUniformLogFormatter>
com.sun.enterprise.server.logging.GFFileHandler.logFormatDateFormat <yyyy-MM-dd'T'HH:mm:ss.SSSZ>
com.sun.enterprise.server.logging.GFFileHandler.logtoConsole <false>
com.sun.enterprise.server.logging.GFFileHandler.maxHistoryFiles <1>
com.sun.enterprise.server.logging.GFFileHandler.retainErrorsStasticsForHours <0>
com.sun.enterprise.server.logging.GFFileHandler.rotationLimitInBytes <1048576>
com.sun.enterprise.server.logging.GFFileHandler.rotationOnDateChange <false>
com.sun.enterprise.server.logging.GFFileHandler.rotationPolicy <logsize>
com.sun.enterprise.server.logging.GFFileHandler.rotationTime <0>
com.sun.enterprise.server.logging.GFFileHandler.rotationTimelimitInMinutes <0>
com.sun.enterprise.server.logging.SyslogHandler.useSystemLogging <false>
java.util.logging.ConsoleHandler.formatter <com.sun.enterprise.server.logging.UniformLogFormatter>
java.util.logging.FileHandler.count <1>
java.util.logging.FileHandler.formatter <java.util.logging.XMLFormatter>
java.util.logging.FileHandler.limit <50000>
java.util.logging.FileHandler.pattern <%h/java%u.log>
```

```
log4j.logger.org.hibernate.validator.util.Version <warn>
Command list-log-attributes executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin list-log-attributes
com.sun.enterprise.server.logging.GFFileHandler.directory <${com.sun.aas.instanceRoot}/logs>
com.sun.enterprise.server.logging.GFFileHandler.file <server.log>
com.sun.enterprise.server.logging.GFFileHandler.flushFrequency <1>
com.sun.enterprise.server.logging.GFFileHandler.formatter
<com.fujitsu.interstage.javaee.logging.manager.ISUniformLogFormatter>
com.sun.enterprise.server.logging.GFFileHandler.logDateFormat <yyyy-MM-dd'T'HH:mm:ss.SSSZ>
com.sun.enterprise.server.logging.GFFileHandler.logtoConsole <false>
com.sun.enterprise.server.logging.GFFileHandler.maxHistoryFiles <1>
com.sun.enterprise.server.logging.GFFileHandler.retainErrorsStasticsForHours <0>
com.sun.enterprise.server.logging.GFFileHandler.rotationLimitInBytes <1048576>
com.sun.enterprise.server.logging.GFFileHandler.rotationOnDateChange <false>
com.sun.enterprise.server.logging.GFFileHandler.rotationPolicy <logsize>
com.sun.enterprise.server.logging.GFFileHandler.rotationTime <0>
com.sun.enterprise.server.logging.GFFileHandler.rotationTimelimitInMinutes <0>
com.sun.enterprise.server.logging.SyslogHandler.useSystemLogging <false>
java.util.logging.ConsoleHandler.formatter <com.sun.enterprise.server.logging.UniformLogFormatter>
java.util.logging.FileHandler.count <1>
java.util.logging.FileHandler.formatter <java.util.logging.XMLFormatter>
java.util.logging.FileHandler.limit <50000>
java.util.logging.FileHandler.pattern <%h/java%u.log>
log4j.logger.org.hibernate.validator.util.Version <warn>
Command list-log-attributes executed successfully.
```

9.1.19.4 set-log-levels Subcommand

Synopsis

set-log-levels [--target target] logger-name=logger-level[:logger-name=logger-level]...

Description

Sets the log level for one or multiple loggers.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specify one of the following values. The default value is "server". <ul style="list-style-type: none"> - server - IJServer cluster name - Setting name |

Operands

| Operand name | Omission | Description |
|--------------|--------------|--|
| logger-name | Not possible | Specify the log level for the logger created using the Java logging API. When multiple loggers are specified, concatenate the "logger name=log |

| Operand name | Omission | Description |
|--------------|----------|---|
| | | <p>level" pair with a colon (':').</p> <p>Do not change the log level for the logger that was set originally.</p> <p>For details on the Java logging API, refer to the JDK document Java logging specification.</p> <p>The log level values that can be set are shown below:</p> <ul style="list-style-type: none"> - SEVERE : Error - WARNING: Warning - INFO : Information - CONFIG : Static configuration message - FINE : Trace - FINER : Detailed trace - FINEST : Extremely detailed trace - ALL : All - OFF : Off |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- Do not change the log level for the logger that was set originally.
- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:
 - Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".
- To update these changes, it may be necessary to perform the synchronization manually. For details, refer to "[2.1.4 Repository Synchronization](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set-log-levels customhandler.MyHandler=FINE
customhandler.MyHandler package set with log level FINE.
These logging levels are set for server.
Command set-log-levels executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin set-log-levels customhandler.MyHandler=FINE
customhandler.MyHandler package set with log level FINE.
These logging levels are set for server.
Command set-log-levels executed successfully.
```

9.1.19.5 delete-log-levels Subcommand

Synopsis

delete-log-levels [--target target] logger-name[:logger-name]...

Description

Deletes the log level for one or multiple loggers.

For details on the usage and points to be noted on the asadmin command, refer also to "9.1 asadmin".

For details on the common options, refer to "9.1.2 asadmin Command Common Options".

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --target | None | Specify one of the following values. The default value is "server". <ul style="list-style-type: none">- server- JServer cluster name- Setting name |

Operands

| Operand name | Omission | Description |
|--------------|--------------|--|
| logger-name | Not possible | Specify the name of the logger for which the log level is to be deleted. When multiple loggers are specified, concatenate the logger names with a colon (:). |

Return value

0: Ended normally

1: Ended abnormally

Notes

- The log level that was set originally should not be deleted for the following loggers:
 - com.sun.enterprise.server.logging.GFFileHandler
 - javax.enterprise.system.tools.admin
 - org.apache.jasper
 - javax.enterprise.resource.corba
 - javax.enterprise.system.core
 - javax.enterprise.system.core.classloading
 - javax.enterprise.resource.jta
 - java.util.logging.ConsoleHandler
 - javax.enterprise.system.webservices.saaj
 - javax.enterprise.system.tools.deployment
 - javax.enterprise.system.container.ejb
 - javax.enterprise.system.core.transaction
 - org.apache.catalina

- javax.enterprise.system.container.ejb.mdb
- org.apache.coyote
- javax
- javax.enterprise.resource.javamail
- javax.enterprise.system.webservices.rpc
- javax.enterprise.system.container.web
- javax.enterprise.system.util
- javax.enterprise.resource.resourceadapter
- javax.enterprise.resource.jms
- javax.enterprise.system.core.config
- javax.enterprise.system
- javax.enterprise.system.core.security
- javax.enterprise.system.container.cmp
- javax.enterprise.system.webservices.registry
- javax.enterprise.system.core.selfmanagement
- Empty strings (root logger)
- javax.enterprise.resource.jdo
- javax.enterprise.system.core.naming
- javax.enterprise.resource.webcontainer.jsf.application
- javax.enterprise.resource.webcontainer.jsf.resource
- javax.enterprise.resource.webcontainer.jsf.config
- javax.enterprise.resource.webcontainer.jsf.context
- javax.enterprise.resource.webcontainer.jsf.facelets
- javax.enterprise.resource.webcontainer.jsf.lifecycle
- javax.enterprise.resource.webcontainer.jsf.managedbean
- javax.enterprise.resource.webcontainer.jsf.renderkit
- javax.enterprise.resource.webcontainer.jsf.taglib
- javax.enterprise.resource.webcontainer.jsf.timing
- javax.enterprise.resource.sqltrace
- javax.org.glassfish.persistence
- org.jvnet.hk2.osgiadapter
- javax.enterprise.system.tools.backup
- org.glassfish.admingui
- javax.enterprise.system.ssl.security
- ShoalLogger
- org.eclipse.persistence.session

- When this subcommand is executed, the processing to update (synchronize) definition items is performed for the following synchronization targets:

- Server instances specified in "target" (or "operand") or all server instances belonging to the specified IJServer cluster

For this reason, the execution result for the server instance or all server instances belonging to the IJServer cluster is output. For details on the execution result, refer to "[Notes on the asadmin command](#)".

- To update these changes, it may be necessary to perform the synchronization manually. For details, refer to "[2.1.4 Repository Synchronization](#)".

Example

Execute as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-log-levels jp.example
These logging levels are deleted for server.
Command delete-log-attributes executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-log-levels jp.example
These logging levels are deleted for server.
Command delete-log-attributes executed successfully.
```

9.1.19.6 list-log-levels Subcommand

Synopsis

list-log-levels [target]

Description

Lists all defined loggers and log levels.

For details on the usage and points to be noted on the asadmin command, refer also to "[9.1 asadmin](#)".

For details on the common options, refer to "[9.1.2 asadmin Command Common Options](#)".

Operands

| Operand name | Omission | Description |
|--------------|----------|---|
| target | Possible | Specify one of the following values. The default value is "server". <ul style="list-style-type: none"> - server - IJServer cluster name - Setting name |

Return value

0: Ended normally

1: Ended abnormally

Example

Execute as follows:

Windows32/64


```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin list-log-levels
ShoalLogger <CONFIG>
com.fujitsu.interstage.javaee.logging.manager.ISFileHandler <ALL>
com.sun.enterprise.server.logging.GFFileHandler <ALL>
java.util.logging.ConsoleHandler <FINEST>
javax.enterprise.resource.corba <INFO>
javax.enterprise.resource.javamail <INFO>
javax.enterprise.resource.jdo <INFO>
javax.enterprise.resource.jms <INFO>
javax.enterprise.resource.jta <INFO>
javax.enterprise.resource.resourceadapter <INFO>
javax.enterprise.resource.sqltrace <FINE>
javax.enterprise.resource.webcontainer.jsf.application <INFO>
javax.enterprise.resource.webcontainer.jsf.config <INFO>
javax.enterprise.resource.webcontainer.jsf.context <INFO>
javax.enterprise.resource.webcontainer.jsf.facelets <INFO>
javax.enterprise.resource.webcontainer.jsf.lifecycle <INFO>
javax.enterprise.resource.webcontainer.jsf.managedbean <INFO>
javax.enterprise.resource.webcontainer.jsf.renderkit <INFO>
javax.enterprise.resource.webcontainer.jsf.resource <INFO>
javax.enterprise.resource.webcontainer.jsf.taglib <INFO>
javax.enterprise.resource.webcontainer.jsf.timing <INFO>
javax.enterprise.system.container.cmp <INFO>
javax.enterprise.system.container.ejb <INFO>
javax.enterprise.system.container.ejb.mdb <INFO>
javax.enterprise.system.container.web <INFO>
javax.enterprise.system.core.classloading <INFO>
javax.enterprise.system.core.config <INFO>
javax.enterprise.system.core <INFO>
javax.enterprise.system.core.naming <INFO>
javax.enterprise.system.core.security <INFO>
javax.enterprise.system.core.selfmanagement <INFO>
javax.enterprise.system.core.transaction <INFO>
javax.enterprise.system <INFO>
javax.enterprise.system.ssl.security <INFO>
javax.enterprise.system.tools.admin <INFO>
javax.enterprise.system.tools.backup <INFO>
javax.enterprise.system.tools.deployment <INFO>
javax.enterprise.system.util <INFO>
javax.enterprise.system.webservices.registry <INFO>
javax.enterprise.system.webservices.rpc <INFO>
javax.enterprise.system.webservices.saaj <INFO>
javax <INFO>
javax.org.glassfish.persistence <INFO>
org.apache.catalina <INFO>
org.apache.coyote <INFO>
org.apache.jasper <INFO>
org.eclipse.persistence.session <INFO>
org.glassfish.admingui <INFO>
org.jvnet.hk2.osgiadapter <INFO>
Command list-log-levels executed successfully.
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/bin/asadmin list-log-levels
ShoalLogger <CONFIG>
com.fujitsu.interstage.javaee.logging.manager.ISFileHandler <ALL>
com.sun.enterprise.server.logging.GFFileHandler <ALL>
```

```
java.util.logging.ConsoleHandler <FINEST>
javax.enterprise.resource.corba <INFO>
javax.enterprise.resource.javamail <INFO>
javax.enterprise.resource.jdo <INFO>
javax.enterprise.resource.jms <INFO>
javax.enterprise.resource.jta <INFO>
javax.enterprise.resource.resourceadapter <INFO>
javax.enterprise.resource.sqltrace <FINE>
javax.enterprise.resource.webcontainer.jsf.application <INFO>
javax.enterprise.resource.webcontainer.jsf.config <INFO>
javax.enterprise.resource.webcontainer.jsf.context <INFO>
javax.enterprise.resource.webcontainer.jsf.facelets <INFO>
javax.enterprise.resource.webcontainer.jsf.lifecycle <INFO>
javax.enterprise.resource.webcontainer.jsf.managedbean <INFO>
javax.enterprise.resource.webcontainer.jsf.renderkit <INFO>
javax.enterprise.resource.webcontainer.jsf.resource <INFO>
javax.enterprise.resource.webcontainer.jsf.taglib <INFO>
javax.enterprise.resource.webcontainer.jsf.timing <INFO>
javax.enterprise.system.container.cmp <INFO>
javax.enterprise.system.container.ejb <INFO>
javax.enterprise.system.container.ejb.mdb <INFO>
javax.enterprise.system.container.web <INFO>
javax.enterprise.system.core.classloading <INFO>
javax.enterprise.system.core.config <INFO>
javax.enterprise.system.core <INFO>
javax.enterprise.system.core.naming <INFO>
javax.enterprise.system.core.security <INFO>
javax.enterprise.system.core.selfmanagement <INFO>
javax.enterprise.system.core.transaction <INFO>
javax.enterprise.system <INFO>
javax.enterprise.system.ssl.security <INFO>
javax.enterprise.system.tools.admin <INFO>
javax.enterprise.system.tools.backup <INFO>
javax.enterprise.system.tools.deployment <INFO>
javax.enterprise.system.util <INFO>
javax.enterprise.system.webservices.registry <INFO>
javax.enterprise.system.webservices.rpc <INFO>
javax.enterprise.system.webservices.saaj <INFO>
javax <INFO>
javax.org.glassfish.persistence <INFO>
org.apache.catalina <INFO>
org.apache.coyote <INFO>
org.apache.jasper <INFO>
org.eclipse.persistence.session <INFO>
org.glassfish.admingui <INFO>
org.jvnet.hk2.osgiadapter <INFO>
Command list-log-levels executed successfully.
```

9.2 Definition Items that can be Executed by the asadmin Command

For details on the definition items that can be processed with the asadmin command get/set/list subcommands, refer to "[Chapter 7 List of Definition Items](#)".

9.3 appclient

Name

appclient - Starts the application client container

Synopsis

```
appclient -client <appjar> [-mainclass <appClass-name>|-name <display name>] [-xml <xml>] [-textauth] [-user <username>] [-passwordfile <file_name>] [<app-args>]
```

Description

This command starts the application client container. If you require the JVM option to be specified, specify it in the VMARGS environment variable. For details, refer to ["4.9.1 Setting the Java EE Application Client Environment"](#).

Options

| Option name | Description |
|---------------|---|
| -client | Specify the path of the client stub JAR file. To download the client stub JAR file, specify the --retrieve option in the asadmin command deploy subcommand when the module containing the client JAR file is deployed, or by specifying the asadmin command get-client-stubs subcommand after the deployment. |
| -mainclass | Specify the mainclass which executes the client container, and has the main method, with a full package name. The default uses the mainclass name defined in the Main-Class attribute of the manifest file included in the client JAR file. The -mainclass or -name option must be specified to use a client stub JAR file that was obtained by deploying the EAR file in which multiple client JAR files are included. |
| -name | Specify the display name. Specify the name that is specified in the display-name tag of the application-client.xml file included in the client JAR file to be executed. The -mainclass or -name option must be specified to use a client stub JAR file that was obtained by deploying the EAR file in which multiple client JAR files are included |
| -xml | Specify the Interstage ACC deployment descriptor (sun-acc.xml). If not specified, use the following files: (*1) Windows32/64 [Java EE 6 common directory]\domains\domain1\config\sun-acc.xml Solaris32/64 Linux32/64 [Java EE 6 common directory]/domains/domain1/config/sun-acc.xml For client packages, you must specify Interstage ACC deployment descriptor (sun-acc.xml) in the -xml option. When required, refer to the template stored below to create the Interstage ACC deployment descriptor (sun-acc.xml). Windows32/64 [Java EE 6 install directory]\glassfish\config\sun-acc.xml Solaris32/64 Linux32/64 [Java EE 6 install directory]/glassfish/config/sun-acc.xml |
| -textauth | Enters the user name and password in the console if using the default security callback handler when calling web services that have had basic authentication configured. This becomes invalid if the -user option and the -passwordfile option are specified. |
| -user | Specify the user name if using the default security callback handler when calling web services that have had basic authentication configured. Specify this in combination with the -passwordfile option. |
| -passwordfile | Specifies the fully qualified name of the file, including password in the format PASSWORD=<password>, if using the default security callback handler when calling web services that have had basic authentication configured. Specify this in combination with the -user option. |

*1)

Do not edit the Interstage ACC deployment descriptor (sun-acc.xml) referenced if the -xml option is not specified. If it has been edited, this product may need to be reinstalled.

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

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\appclient -client MyApplicationClient.jar -xml sun-acc.xml test
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/appclient -client MyApplicationClient.jar -xml sun-acc.xml test
```

9.4 ij6setoperatorid

Name

ij6setoperatorid - Sets the service operator user

Synopsis

Solaris32/64 Linux32/64

```
ij6setoperatorid [-l] | [-u <user name>]
```

Description

This command sets the service operator user. It changes the administrator privileges for the processes of the Interstage Java EE 6 DAS service, IJServer cluster/server instance and PCMI service to the service operator user.

It also sets appropriate security privileges that are based on the service operator user for executable files or definition files, and program resources such as various logs.

Options

| Option name | Description |
|-------------|---|
| -l | Displays the service operator user that is currently set. |
| -u | Specifies the service operator user. Root or the name of the user whose primary group is the Interstage operation group can be specified with up to eight characters. |

Return value

- 0: Ended normally
- Other than 0: Ended abnormally

Notes

- This command can only be executed by the system administrator.
- Follow the operating system guidelines for using a user name for the service operator user. If a user name is used without following the operating system guidelines, the Java EE 6 service might fail to start, or processing might fail.
- The service operator user is initialized by root immediately after installation. Also, when the `isetscuritymode` command is executed, the service operator user is initialized as the root. If necessary, execute the `ij6setoperatorid` command to change the service operator user.
- If the service operator user is changed to root, the message shown below will be output.

```
ISJE6: INFO: IJ6SETOPID001: The service operation user was changed to root.
```

- When the `-u` option is specified, stop the following before executing this command:
 - All IJServer clusters
 - All message brokers
 - The Interstage Java EE 6 DAS service
 - The PCMI serviceOf the above, if either the PCMI service or the message broker is stopped, command operations will result in an error.
- If the service operator user is changed, refer to "[1.3.12 Notes on Access Privileges for the Resource when the Service Operator User was Changed](#)" and grant the required privileges.
- When deleting the user that has been set as the service operator user from the OS, you must first set the service operator user to a different user using this command.

Example

Specifies the service operator user.

```
/opt/FJSVisje6/glassfish/bin/ij6setoperatorid -u apuser  
ISJE6: INFO: IJ6SETOPID001: The service operation user was changed to apuser.  
ISJE6: INFO: IJ6SETOPID002: ij6setoperatorid executed successfully.
```

Displays the service operator user that is currently set.

```
/opt/FJSVisje6/glassfish/bin/ij6setoperatorid -l  
apuser
```

9.5 imqbrokerd

Name

imqbrokerd - Creates and removes the message broker material and starts the message broker


Synopsis

- (1) Create message broker material
`imqbrokerd -init [-name <name>]`
- (2) Start the message broker
`imqbrokerd [[-D<property=value>]...] [-name <name>] [-port #] [-reset <data>] [-s|-silent] [-vmargs <vmarguments>]`
- (3) Remove message broker material
`imqbrokerd -remove instance [-force] [-name <name>]`
- (4) Display help
`imqbrokerd {-h|-help}`

Description

This command creates or removes message broker material and performs startup.

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| -init | None | Creates the material required to run the message broker. |
| -D | None | Used when performing various settings in the message broker. For details on the properties that can be specified, refer to "7.6 Message Broker Option Properties" .  Example Set the <code>imq.system.max_size</code> property to "10m" <code>-Dimq.system.max_size=10m</code> |
| -force | None | Does not prompt the user for confirmation when removing message broker material. |
| -help | -h | Displays help on using the command. |
| -name | None | Starts the message broker instance for the name specified in the argument. (Note1) The default value is "imqbroker". |
| -port | None | Specifies the port number of the message broker. This port is used as the port number for the port mapper. The default value is 17676. |
| -remove | None | Removes message broker material that is no longer necessary (configuration file, log files, persistent store, or other related files and directories). The message broker will not start. Specify "instance" in the argument. |
| -reset | None | Removes the dynamically created message broker data or removes the message broker status and starts the message broker. - store In addition to all the messages and the related data, this destroys all data stores, including the durable subscription and transaction information. - messages Destroys all persistent messages. |

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| | | <ul style="list-style-type: none"> - durables Destroys all durable subscriptions. - props If the service is paused when the imqcmd pause bkr command is used, the paused status will continue even if the message broker is restarted. If this option is specified and the message broker is started, the paused status will be removed and the message broker will start. |
| -silent | -s | No messages will be shown on the terminal console. |
| -vmargs | None | Specifies options for the Java VM operated by the message broker. |

Note1)

Do not include the following characters in message broker instance names specified in arguments:

- Symbols that cannot be used in file names (\ / : * ? " < > | .)
- Spaces
- DOS device names

Return value

0: Ended normally
 Other than 0: Ended abnormally

Notes

- Execute this command as a user with administrator privileges.
- Execute this command when the message broker has been stopped.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqbrokerd -force -remove instance
[01/12/2011:12:00:00 JST] [B1095]: Removing persistent store...
[01/12/2011:12:00:00 JST] Using built-in file-based persistent store: C:\Interstage\F3FMisje6\var\domains
\domain1\imq\instances\imqbroker\
Removing all instance data...
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqbrokerd -force -remove instance
[01/12/2011:12:00:00 JST] [B1095]: Removing persistent store...
[01/12/2011:12:00:00 JST] Using built-in file-based persistent store: /var/opt/FJSVisje6/domains/domain1/imq/
instances/imqbroker/
Removing all instance data...
```

9.6 imqcmd

Name

imqcmd - Manages the message broker

Synopsis

(1) Run subcommands

imqcmd <subcommand> <option>

(2) Display help

imqcmd {-help|-h|-Help|-H}

Description

This command creates and destroys the physical storage destination.

Subcommands are as follows:

| Subcommands | Description |
|------------------------------|---|
| create dst | Creates the physical storage destination. |
| destroy cxn | Removes the connection. |
| destroy dst | Destroys the physical storage destination. |
| destroy dur | Destroys the durable subscription. |
| list cxn | Displays a list of the connections being managed by the message broker. |
| list dst | Displays the list of physical storage destinations that the message broker is managing. |
| list dur | Displays the list of durable subscriptions. |
| list svc | Displays a list of the services being managed by the message broker. |
| pause bkr | Pauses all message broker services. |
| pause dst | Pauses either one or all physical storage destinations. |
| purge dst | Purge all messages of physical storage destinations without destroying them. |
| purge dur | Purge all messages of durable subscriptions without destroying them. |
| query bkr | Queries and displays message broker information. |
| query cxn | Queries and displays connection information. |
| query dst | Queries and displays physical storage destination information. |
| query svc | Queries and displays services information. |
| restart bkr | Restarts the message broker. |
| resume bkr | Resumes message broker services. |
| resume dst | Resumes either one or all physical storage destinations. |
| shutdown bkr | Shuts down the message broker. |
| update dst | Updates physical storage destination properties. |

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| -b | None | 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. |

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| | | To specify only the port number, use ":port" format. IPv6 format IP addresses can also be enclosed in square brackets ([]) and specified. For details on how to specify this type of address, refer to "Examples" . The default host name is "localhost". The default port is "17676". |
| -help | -h | Displays help on using the command. |
| -Help | -H | Displays help, properties lists, and examples. |
| -f | None | Does not prompt the user for confirmation. |
| -u | None | Specifies the message broker administrator user name. If omitted, the system will prompt you to enter the administrator user name. |
| -passfile | None | Specifies the full path of the password file name. If omitted, the system will prompt you to enter the administrator password. For details on how to specify password files, refer to "Specification of password files" . |

Return value

0: Ended normally

Other than 0: Ended abnormally

Notes

- Execute this command as a user with administrator privileges.
- 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.
For details on users, refer to ["5.8.1 Users and groups"](#).

Specification of password files

Use `imq.imqcmd.password` in password files specified in the `-passfile` option, and specify as below:

```
imq.imqcmd.password=<password>
```

If the password file cannot be referenced, execution of the command will fail. Refer to the error message that was output, and take action.



Note

[Solaris32/64](#) [Linux32/64](#)

To protect passwords specified in password files, set access permission for password files created using a text editor to "400".

Examples

Execute the command as follows:

Specifying the IPv4 address (127.0.0.1) and port number (17676) for `-b` option

[Windows32/64](#)

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd update dst -t q -n mq.sys.dmq -o
maxNumMsgs=10000 -b 127.0.0.1:17676
```

```

Username: admin
Password:
Updating the Queue destination that has the name:

mq.sys.dmq

with the following updated attributes:

maxNumMsgs      10000

On the broker specified by:

-----
Host            Primary Port
-----
127.0.0.1      17676

Are you sure you want to update this destination? (y/n)[n] y

Successfully updated the destination.

```

Solaris32/64 Linux32/64

```

/opt/FJSVisje6/mq/bin/imqcmd update dst -t q -n mq.sys.dmq -o maxNumMsgs=10000 -
b 127.0.0.1:17676
Username: admin
Password:
Updating the Queue destination that has the name:

mq.sys.dmq

with the following updated attributes:

maxNumMsgs      10000

On the broker specified by:

-----
Host            Primary Port
-----
127.0.0.1      17676

Are you sure you want to update this destination? (y/n)[n] y

Successfully updated the destination.

```

Specifying the IPv6 address (::1) and port number (17676) for -b option

Windows32/64

```

C:\Interstage\F3FMisje6\mq\bin\imqcmd update dst -t q -n mq.sys.dmq -o
maxNumMsgs=10000 -b [::1]:17676
Username: admin
Password:
Updating the Queue destination that has the name:

mq.sys.dmq

with the following updated attributes:

maxNumMsgs      10000

```

On the broker specified by:

```
-----  
Host      Primary Port  
-----  
[::1]    17676
```

Are you sure you want to update this destination? (y/n)[n] y

Successfully updated the destination.

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd update dst -t q -n mq.sys.dmq -o maxNumMsgs=10000 -  
b [::1]:17676
```

Username: admin

Password:

Updating the Queue destination that has the name:

mq.sys.dmq

with the following updated attributes:

maxNumMsgs 10000

On the broker specified by:

```
-----  
Host      Primary Port  
-----  
[::1]    17676
```

Are you sure you want to update this destination? (y/n)[n] y

Successfully updated the destination.

When specifying -u options and -passfile options

There is no need to enter the administrator user name and password.

Also, if the -f option is specified, there is no need to confirm execution.

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd update dst -t q -n mq.sys.dmq -o  
maxNumMsgs=10000 -u admin -passfile C:\tmp\passfile.txt -f
```

Updating the Queue destination that has the name:

mq.sys.dmq

with the following updated attributes:

maxNumMsgs 10000

On the broker specified by:

```
-----  
Host      Primary Port  
-----  
localhost 17676
```

Successfully updated the destination.

```

/opt/FJSVisje6/mq/bin/imqcmd update dst -t q -n mq.sys.dmq -o maxNumMsgs=10000 -
u admin -passfile /tmp/passfile.txt -f
Updating the Queue destination that has the name:

mq.sys.dmq

with the following updated attributes:

maxNumMsgs    10000

On the broker specified by:

-----
Host          Primary Port
-----
localhost     17676

Successfully updated the destination.

```

9.6.1 create dst Subcommand

Synopsis

```
imqcmd create dst -t <physical storage destination type> -n <physical storage destination name> [-o <property name=value> [-o <property name=value>]...]
```

Description

This subcommand creates the physical storage destination.

Options

| Option name | Description |
|-------------|---|
| -t | Specify one of the following physical storage destination types: <ul style="list-style-type: none"> - q : Queue - t : Topic |
| -n | Specify the physical storage destination name using the following rules: <ul style="list-style-type: none"> - Only alphanumerics, underscores ("_"), and dollar signs ("\$") can be used - Must start with alphanumerics, or underscore ("_"), or dollar sign ("\$") - Cannot start with "mq." - The string "__JMQAdmin" cannot be used |
| -o | Specify the property related to the physical storage destination. <p>For details on the properties that can be specified, refer to "7.6.7 Physical Storage Destination Generation or Update Properties".</p> |

Return value

0: Ended normally
Other than 0: Ended abnormally

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd create dst -t q -n JMSQueue
Username: admin
Password:
Creating a destination with the following attributes:

Destination Name  JMSQueue
Destination Type  Queue

On the broker specified by:

-----
Host      Primary Port
-----
localhost 17676

Successfully created the destination.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd create dst -t q -n JMSQueue
Username: admin
Password:
Creating a destination with the following attributes:

Destination Name  JMSQueue
Destination Type  Queue

On the broker specified by:

-----
Host      Primary Port
-----
localhost 17676

Successfully created the destination.
```

9.6.2 destroy cxn Subcommand

Synopsis

```
imqcmd destroy cxn -n <connection ID>
```

Description

This subcommand destroys a connection.

Options

| Option name | Description |
|-------------|------------------------------|
| -n | Specifies the connection ID. |

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

Execute the command as follows:

You will be prompted to confirm the destruction of the connection.

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd destroy cxn -n 9007548068727227648
Username: admin
Password:
Destroying the connection where:

-----
Connection ID
-----
9007548068727227648

On the broker specified by:

-----
Host          Primary Port
-----
localhost     17676

Are you sure you want to destroy this connection? (y/n)[n] y

Successfully destroyed the connection.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd destroy cxn -n 9007548068727227648
Username: admin
Password:
Destroying the connection where:

-----
Connection ID
-----
9007548068727227648

On the broker specified by:

-----
Host          Primary Port
-----
localhost     17676

Are you sure you want to destroy this connection? (y/n)[n] y

Successfully destroyed the connection.
```

9.6.3 destroy dst Subcommand

Synopsis

imqcmd destroy dst -t <physical storage destination type> -n <physical storage destination name>

Description

This subcommand destroys the physical storage destination.

Options

| Option name | Description |
|-------------|--|
| -t | Specify one of the following physical storage destination types: - q : Queue - t : Topic |
| -n | Specify the physical storage destination name. |

Return value

0: Ended normally

Other than 0: Ended abnormally

Notes

If "-t q" is specified, then the physical storage destination name cannot be "mq.sys.dmq" (dead message queue).

Example

Execute the command as follows:

You will be prompted to confirm the destruction of the physical storage destination.

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd destroy dst -t q -n JMSQueue
Username: admin
Password:
Destroying the destination where:

-----
Destination Name  Destination Type
-----
JMSQueue          Queue

On the broker specified by:

-----
Host      Primary Port
-----
localhost 17676

Are you sure you want to destroy this destination? (y/n)[n] y

Successfully destroyed the destination.
```

Solaris32/64 Linux32/64

```

/opt/FJSVisje6/mq/bin/imqcmd destroy dst -t q -n JMSQueue
Username: admin
Password:
Destroying the destination where:

-----
Destination Name  Destination Type
-----
JMSQueue         Queue

On the broker specified by:

-----
Host      Primary Port
-----
localhost 17676

Are you sure you want to destroy this destination? (y/n)[n] y

Successfully destroyed the destination.

```

9.6.4 destroy dur Subcommand

Synopsis

```
imqcmd destroy dur -c <client ID> -n <subscriber DN (distinguished name)>
```

Description

This subcommand destroys the durable subscription.

Options

| Option name | Description |
|-------------|----------------------------|
| -c | Specify the client ID. |
| -n | Specify the subscriber DN. |

Return value

0: Ended normally
Other than 0: Ended abnormally

Notes

Before executing this command, use the [list dur](#) subcommand to make sure that the deletion target durable subscription status is "INACTIVE".

Example

Execute the command as follows:
You will be prompted to confirm the destruction of the durable subscription.

 Windows32/64


```

C:\Interstage\F3FMisje6\mq\bin\imqcmd destroy dur -c test -n sample
Username: admin
Password:
Destroying the durable subscription where:

-----
Durable Sub. Name  Client ID
-----
sample             test

On the broker specified by:

-----
Host      Primary Port
-----
localhost 17676

Are you sure you want to destroy this durable subscription? (y/n)[n] y

Successfully destroyed the durable subscription.

```

Solaris32/64 **Linux32/64**

```

/opt/FJSVisje6/mq/bin/imqcmd destroy dur -c test -n sample
Username: admin
Password:
Destroying the durable subscription where:

-----
Durable Sub. Name  Client ID
-----
sample             test

On the broker specified by:

-----
Host      Primary Port
-----
localhost 17676

Are you sure you want to destroy this durable subscription? (y/n)[n] y

Successfully destroyed the durable subscription.

```

9.6.5 list cxn Subcommand

Synopsis

```
imqcmd list cxn [-svn <service name>]
```

Description

This subcommand lists the connections being managed by the message broker.

Options

| Option name | Description |
|-------------|---|
| -svn | <p>Specifies the connection service name.</p> <p>Displays a list of all connections on the message broker for the specified connection services. If omitted, all connections are listed.</p> <p>Specify one of the following connection service names:</p> <ul style="list-style-type: none"> - admin: admin connection service - jms: jms connection service |

Return value

0: Ended normally

Other than 0: Ended abnormally

Notes

- If this command is executed while the message broker connection is being disconnected, a message may be output to the user of that connection. If the message is output, take action after referring to the actions described in the message.
- When this command is executed, the admin connection service is used to connect to the message broker. When the command finishes, the connection will end. Since the connection ends as the command finishes, the connection information of the admin connection service listed by this command will be of no use.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd list cxn
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd list cxn
```

Output example

```
Listing all the connections on the broker specified by:

-----
Host(*1)    Primary Port
-----
localhost    17676

-----
Connection ID      User      Service   Producers   Consumers   Host(*2)
-----
504153610318406656  guest    jms       0           0           127.0.0.1
504153611584544512  admin    admin     1           1           127.0.0.1
```

Information displayed

In the following table, notes (*1) and (*2) refer to items in the "Output example" above.

| Item that is displayed | Content |
|------------------------|--|
| Host (*1) | 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 the unique ID set when connecting to the message broker. |
| User | This is the user name of the connected user. |
| Service | These are the connected service names: <ul style="list-style-type: none"> - admin: admin connection service - jms: jms connection service |
| Producers | This is the number of connected producers. |
| Consumers | This is the number of connected consumers. |
| Host (*2) | This is the IP addresses of connected clients. |

9.6.6 list dst Subcommand

Synopsis

```
imqcmd list dst [-t <physical storage destination type>] [-tmp]
```

Description

This subcommand displays the list of physical storage destinations that the message broker is managing.

Options

| Option name | Description |
|-------------|--|
| -t | Specify one of the following physical storage destination types (if omitted, all destinations will be listed): <ul style="list-style-type: none"> - q : Queue - t : Topic |
| -tmp | Causes temporary physical storage destinations to also be displayed. |

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

Execute the command as follows:

If type (-t option) is not specified

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd list dst
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd list dst
```

If Queue type (-t q) is specified

```
Windows32/64
```

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd list dst -t q
```

```
Solaris32/64 Linux32/64
```

```
/opt/FJSVisje6/mq/bin/imqcmd list dst -t q
```

Output example

If type (-t option) is not specified

```
Listing all the destinations on the broker specified by:
-----
Host          Primary Port
-----
localhost     17676
-----

Name          Type      State      Producers(*1)  Consumers(*2)  Msgs
              Total Wildcard Total Wildcard Count  Remote
UnAck  Avg Size
-----
mq.sys.dmq   Queue   RUNNING   0      -      0      -      0      0      0      0.0
topic        Topic   RUNNING   0      0      0      0      0      0      0
0            0.0
```

If Queue type (-t q) is specified

```
Listing all the destinations on the broker specified by:
-----
Host          Primary Port
-----
localhost     17676
-----

Name          Type      State      Producers(*3)  Consumers(*4)  Msgs
              Active Backup Count  Remote  UnAck  Avg Size
-----
mq.sys.dmq   Queue   RUNNING   0              0          0          0          0          0          0.0
```

Information displayed

In the following table, notes (*1), (*2), (*3) and (*4) refer to items in the "Output example" above.

| 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: Running - PAUSED: Paused - PRODUCERS_PAUSED: Sending paused - CONSUMERS_PAUSED: Receiving paused |
| Producers (*1) (Note1) | Total | This is the number of producers that are connected to the physical storage destination. |
| | Wildcard | This is an unsupported item. |
| Producers (*3) (Note2) | | This is the number of producers that are connected to the physical storage destination. |
| Consumers (*2) (Note1) | Total | This is the number of consumers that are connected to the physical storage destination. |
| | Wildcard | This is an unsupported item. |
| Consumers (*4) (Note2) | Active | This is the number of consumers that can receive messages from the physical storage destination. |
| | Backup | This is the number of consumers that are waiting to receive messages from the physical storage destination. |
| Msgs | Count | This is the number of messages that are stored in the physical storage destination. |
| | Remote | This is an unsupported item. |
| | UnAck | This is the total number of sent/received messages being processed in the transaction, plus messages being processed before delivery to the connection consumer. |
| | Avg Size | This is the average size (Unit: bytes) of messages stored in the physical storage destination. |

Note1)

Displayed when "-t" is not specified or "-t t" is specified.

Note2)

Displayed when "-t q" is specified.

9.6.7 list dur Subcommand

Synopsis

imqcmd list dur [-d <topic name>]

Description

This subcommand displays the list of durable subscriptions.

Options

| Option name | Description |
|-------------|--|
| -d | Specify the name of a physical storage destination whose physical storage destination type is Topic. If omitted, a list of durable subscriptions will be displayed. |

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

Execute the command as follows:

If physical storage destination (-d option) is not specified

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd list dur
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd list dur
```

If topic (-d option) is specified

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd list dur -d topic
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd list dur -d topic
```

Output example

If physical storage destination (-d option) is not specified

```
Listing all durable subscriptions on the topic 'topic' on the broker specified by:
```

```
-----  
Host          Primary Port  
-----  
localhost     17676
```

```

-----
-----
Durable Sub. Name  Client ID  Destination Name  Number of Messages  Durable
Sub. State
-----
-----
a                  a_cid     topic001         0                    ACTIVE
a                  cid       topic002         0                    INACTIVE

```

If topic (-d option) is specified

```

Listing all durable subscriptions on the topic 'topic' on the broker specified by:

-----
Host          Primary Port
-----
localhost    17676

-----
Durable Sub. Name  Client ID  Number of Messages  Durable Sub. State
-----
a                  a_cid     0                    ACTIVE
a                  cid       0                    INACTIVE

```

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. |
| Durable Sub. Name | This is the subscriber DN. |
| Client ID | This is the ID that is set per connection. |
| Destination Name Note1) | This is the physical storage destination name. |
| Number of Messages | This is the number of messages that are waiting to be delivered to the JMS client. |
| Durable Sub. State | The status of the durable subscription is displayed. - ACTIVE: The JMS client is active. - INACTIVE: The JMS client is inactive or does not exist. |

Note1)

Displayed when -d is not specified.

9.6.8 list svc Subcommand

Synopsis

```
imqcmd list svc
```

Description

This subcommand displays a list of the services being managed by the message broker.

Options

None

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd list svc
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd list svc
```

Output example

Listing all the services on the broker specified by:

```
-----  
Host          Primary Port  
-----  
localhost     17676  
  
-----  
Service Name  Port Number      Service State  
-----  
admin         49462 (dynamic)   RUNNING  
httpjms      -                 UNKNOWN  
httpsjms     -                 UNKNOWN  
jms          44444 (static)   RUNNING  
ssladmin     dynamic          UNKNOWN  
ssljms       dynamic          UNKNOWN
```

Information 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 | This is the name of the service to be displayed. The following services are not supported: <ul style="list-style-type: none">- httpjms- httpsjms- ssladmin |

| Item that is displayed | Content |
|------------------------|--|
| | - ssljms |
| Port Number | This is the port number that is used by the service. The value within the parentheses displays the method for assigning ports. - dynamic: ports are assigned dynamically. - static: ports are assigned statically. |
| Service State | Indicates the status of the service. - RUNNING: Service is running - PAUSED: Temporarily stopped - UNKNOWN: Unconfigured - UNINITIALIZED: In the process of being initialized. - INITIALIZED: Initialization process has completed. - STARTED: In the process of starting. - SHUTTINGDOWN: In the process of shutting down. - STOPPED: The service is stopped. - DESTROYED: Has been destroyed. |

9.6.9 pause bkr Subcommand

Synopsis

imqcmd pause bkr

Description

This subcommand pauses the message broker.

Messages cannot be sent and received if the message broker is paused because all services, other than the admin connection services managed by the message broker, will also be paused.

Options

None

Return value

0: Ended normally

Other than 0: Ended abnormally

Notes

- This command is returned normally even if the message broker is already paused.
- Because the admin connection service will not be paused even when the message broker is paused, the imqcmd command can be run.
- If the service is paused when this command is used, the paused status will continue even if the message broker is restarted.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd pause bkr
```

Solaris32/64 Linux32/64

```
/opt/FISVisje6/mq/bin/imqcmd pause bkr
```

9.6.10 pause dst Subcommand

Synopsis

```
imqcmd pause dst [-t < physical storage destination type> -n < physical storage destination name>] [-pst <stop type>]
```

Description

This subcommand pauses either one or all physical storage destinations.

If the physical storage destination to be paused is not specified, all physical storage destinations will be paused.

Options

| Option name | Description |
|-------------|---|
| -t | Specify one of the following physical storage destination types: <ul style="list-style-type: none">- q : Queue- t : Topic |
| -n | Specify the physical storage destination name. |
| -pst | Specifies the type of message delivery to be paused. Specify one of the following (the default is ALL): <ul style="list-style-type: none">- CONSUMERS: pauses delivery to consumers- PRODUCERS: pauses reception from producers- ALL: pauses all message processes. |

Return value

0: Ended normally

Other than 0: Ended abnormally

Notes

This command is returned normally even if the specified physical storage destination is already paused.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd pause dst
```

```
Solaris32/64 Linux32/64
```

```
/opt/FJSVisje6/mq/bin/imqcmd pause dst
```

9.6.11 purge dst Subcommand

Synopsis

```
imqcmd purge dst -t <physical storage destination type> -n <physical storage destination name>
```

Description

This subcommand purges all messages of the physical storage destination without destroying them.

Options

| Option name | Description |
|-------------|--|
| -t | Specify one of the following physical storage destination types: <ul style="list-style-type: none">- q : Queue- t : Topic |
| -n | Specify the physical storage destination name. |

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

Execute the command as follows:

You will be prompted to confirm the purge of the physical storage destination messages.

```
Windows32/64
```

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd purge dst -t t -n JMSTopic
Username: admin
Password:
Purging the destination where:

-----
Destination Name  Destination Type
-----
JMSTopic         Topic

On the broker specified by:

-----
Host      Primary Port
-----
localhost 17676

Are you sure you want to purge this destination? (y/n)[n] y
```

```
Successfully purged the destination.
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/mq/bin/imqcmd purge dst -t t -n JMSTopic
Username: admin
Password:
Purging the destination where:

-----
Destination Name  Destination Type
-----
JMSTopic          Topic

On the broker specified by:

-----
Host      Primary Port
-----
localhost 17676

Are you sure you want to purge this destination? (y/n)[n] y

Successfully purged the destination.
```

9.6.12 purge dur Subcommand

Synopsis

```
imqcmd purge dur -c <client ID> -n <subscriber DN (distinguished name)>
```

Description

This subcommand purges all messages of the durable subscription without destroying them.

Options

| Option name | Description |
|-------------|----------------------------|
| -c | Specify the client ID. |
| -n | Specify the subscriber DN. |

Return value

0: Ended normally
Other than 0: Ended abnormally

Example

Execute the command as follows:
You will be prompted to confirm the purge of the messages of the durable subscription.

Windows32/64

```

C:\Interstage\F3FMisje6\mq\bin\imqcmd purge dur -c test -n sample
Username: admin
Password:
Purging the durable subscription where:

-----
Durable Sub. Name  Client ID
-----
sample            test

On the broker specified by:

-----
Host      Primary Port
-----
localhost 17676

Are you sure you want to purge this durable subscription? (y/n)[n] y

Successfully purged the durable subscription.

```

Solaris32/64 **Linux32/64**

```

/opt/FJSVisje6/mq/bin/imqcmd purge dur -c test -n sample
Username: admin
Password:
Purging the durable subscription where:

-----
Durable Sub. Name  Client ID
-----
sample            test

On the broker specified by:

-----
Host      Primary Port
-----
localhost 17676

Are you sure you want to purge this durable subscription? (y/n)[n] y

Successfully purged the durable subscription.

```

9.6.13 query bkr Subcommand

Synopsis

```
imqcmd query bkr
```

Description

This subcommand queries and displays message broker information.

Options

None

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd query bkr
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd query bkr
```

Output example

```
Querying the broker specified by:
```

```
-----  
Host          Primary Port (*1)  
-----
```

```
localhost     17676
```

```
Version                4.5  
Instance Name          imqbroker  
Broker ID                
Primary Port (*2)      17676  
Broker is Embedded     false  
Instance Configuration/Data Root Directory /var/opt/FJSVisje6/domains/  
domain1/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  
Auto Created Destination useDMQ      true  
  
Cluster ID                          
Cluster is Highly Available         false  
Cluster Broker List (active)        mq://127.0.0.1:17676/  
Cluster Broker List (configured)      
Cluster Master Broker                 
Cluster URL                          
```

| | |
|---------------------------------|-----------|
| Log Level | INFO |
| Log Rollover Interval (seconds) | 604800 |
| Log Rollover Size (bytes) | 268435456 |

Information displayed

In the following table, notes (*1) and (*2) refer to items in the "Output example" above.

| Item that is displayed | Content |
|---|--|
| Host | This displays the host name that is given to the message broker when it starts. |
| Primary Port (*1) | This displays the port number being used by the message broker. |
| Version | This displays the version of the message broker. |
| Instance Name | This displays the message broker instance names. |
| Broker ID | This is an unsupported item. |
| Primary Port (*2) | This displays the primary port for the port mapper function. |
| Broker is Embedded | This displays the message broker operation mode. <ul style="list-style-type: none"> - true: EMBEDDED mode - false: REMOTE mode |
| Instance Configuration/Data Root Directory | This displays the message broker material storage destination. |
| Current Number of Messages in System | This displays the number of messages that are stored in the message broker. |
| Current Total Message Bytes in System | This displays the size of messages that are stored in the message broker. |
| Current Number of Messages in Dead Message Queue | This displays the number of messages that are stored in the dead message queue. |
| Current Total Message Bytes in Dead Message Queue | This displays the size of messages that are stored in the dead message queue. |
| Log Dead Messages | This displays the output settings for the dead message log. <ul style="list-style-type: none"> - true: Outputs the dead message process to a log. - false: Does not output the dead message process to a log. |
| Truncate Message Body in Dead Message Queue | This displays how dead messages are stored. <ul style="list-style-type: none"> - true: Main body of message is deleted and properties information stored. - false: Main body of messages stored as is. |
| Max Number of Messages in System | This displays the maximum number of messages that can be stored in the message broker. |
| Max Total Message Bytes in System | This displays the total maximum size of messages that can be stored in the message broker. |
| Max Message Size | This displays the maximum size of individual messages that can be stored in the message broker. |
| Auto Create Queues | This displays whether or not auto creation of physical storage destinations where the physical storage destination type is Queue has been enabled. <ul style="list-style-type: none"> - true: Auto creation is enabled. - false: Auto creation is disabled. |

| Item that is displayed | Content |
|---|--|
| Auto Create Topics | This displays whether or not auto creation of physical storage destinations where the physical storage destination type is Topic has been enabled. - true: Auto creation is enabled. - false: Auto creation is disabled. |
| Auto Created Queue Max Number of Active Consumers | This displays the maximum number of consumers that can be connected to physical storage destinations where the auto created physical storage destination type is Queue. |
| Auto Created Queue Max Number of Backup Consumers | This displays the maximum number of standby consumers that can be connected to physical storage destinations where the auto created physical storage destination type is Queue. |
| Auto Created Destination useDMQ | This displays whether or not the auto-created physical storage destination type will use the dead message queue. |
| 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 (seconds) | This displays the interval that triggers rotating output to a new log file. |
| Log Rollover Size (bytes) | This displays the file size that triggers rotating output to a new log file. |

9.6.14 query cxn Subcommand

Synopsis

```
imqcmd query cxn -n <connection ID>
```

Description

This subcommand queries and displays connection information.

Options

| Option name | Description |
|-------------|------------------------------|
| -n | Specifies the connection ID. |

Return value

0: Ended normally
Other than 0: Ended abnormally

Example

Execute the command as follows:

```
Windows32/64
```



```
C:\Interstage\F3FMisje6\mq\bin\imqcmd query cxn -n 2965370868928146944
```

```
Solaris32/64 Linux32/64
```

```
/opt/FJSVisje6/mq/bin/imqcmd query cxn -n 2965370868928146944
```

Output example

```
Querying the connection where:

-----
Connection ID (*1)
-----
2965370868928146944

On the broker specified by:

-----
Host (*2) Primary Port
-----
localhost      17676

Connection ID (*3) 2965370868928146944
User               admin
Service            admin
Producers          1
Consumers          1
Host (*4)          127.0.0.1
Port               50508
Client ID
Client Platform    Message Queue/4.5 (JMS; Linux 2.6.18-128.el5 amd64)
```

Information displayed

In the following table, notes (*1), (*2), (*3) and (*4) refer to items in the "Output example" above.

| Item that is displayed | Content |
|------------------------|--|
| Connection ID (*1) | This displays the connection ID specified when the command is run. |
| Host (*2) | This displays the host name that is given to the message broker when it starts. |
| Primary Port | This displays the port number being used by the message broker. |
| Connection ID (*3) | This displays the connection ID that shows detailed information. |
| User | This displays user names that are using a connection. |
| Service | This displays service names that are using a connection. - admin: admin connection service - jms: jms connection service |
| Producers | This displays the number of producers connected on this connection. |
| Consumers | This displays the number of consumers connected on this connection. |
| Host (*4) | This displays the IP address of the host that made this connection. |
| Port | This displays the port number that the service will actually use. |
| Client ID | This displays the client ID configured in the connection. |

| Item that is displayed | Content |
|------------------------|---|
| Client Platform | This displays the client product and platform that are connected to the connection. |

9.6.15 query dst Subcommand

Synopsis

imqcmd query dst -t <physical storage destination type> -n <physical storage destination name>

Description

This subcommand queries and displays physical storage destination information.

Options

| Option name | Description |
|-------------|--|
| -t | Specify one of the following physical storage destination types: <ul style="list-style-type: none"> - q: Queue - t: Topic |
| -n | Specify the physical storage destination name. |

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

Execute the command as follows:

When Queue is specified as the physical storage destination type (-t q)

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd query dst -t q -n q1
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd query dst -t q -n q1
```

When Topic is specified as the physical storage destination type (-t t)

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd query dst -t t -n t1
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd query dst -t t -n t1
```

Output example

When Queue is specified as the physical storage destination type (-t q)

```
Querying the destination where:
-----
Destination Name (*1)   Destination Type (*2)
-----
q1                      Queue

On the broker specified by:
-----
Host          Primary Port
-----
localhost     17676

Destination Name (*3)           q1
Destination Type (*4)          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 Topic is specified as the physical storage destination type (-t t)

```
Querying the destination where:
-----
Destination Name(*1)   Destination Type(*2)
-----
t1                      Topic

On the broker specified by:
```

```

-----
Host          Primary Port
-----
localhost    17676

Destination Name (*3)          t1
Destination Type (*4)         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

```

Information displayed

In the following table, notes (*1), (*2), (*3) and (*4) refer to items in the "Output example" above.

| Item that is displayed | Content |
|------------------------|---|
| Destination Name (*1) | This displays the physical storage destination name specified when the command is run. |
| Destination Type (*2) | This displays the physical storage destination type specified when the command is run. |
| Host | This displays the host name that is given to the message broker when it starts. |
| Primary Port | This displays the port number being used by the message broker. |
| Destination Name (*3) | This displays the physical storage destination name. |
| Destination Type (*4) | This displays the physical storage destination type. <ul style="list-style-type: none"> - Queue - Queue (temporary) |

| Item that is displayed | | Content |
|--|---------------------|---|
| | | <ul style="list-style-type: none"> - Topic - Topic (temporary) |
| Destination State | | <p>This displays the state of the physical storage destination.</p> <ul style="list-style-type: none"> - RUNNING: Running. - PAUSED: Temporarily stopped - PRODUCERS_PAUSED: Transmission is paused - CONSUMERS_PAUSED: Reception is paused |
| Created Administratively | | <p>This displays whether the physical storage destination was created by the message broker.</p> <ul style="list-style-type: none"> - true: Shows that creation was by commands and JMS client requests. - false: Shows that creation was automatic. |
| Current Number of Messages | Actual | This displays the number of messages stored in the physical storage destination. |
| | Remote | This is an unsupported item. |
| | Held in Transaction | This displays the number of messages being held in the transaction process. |
| Current Message Bytes | Actual | This displays the size of messages stored in the physical storage destination. |
| | Remote | This is an unsupported item. |
| | Held in Transaction | This displays the size of messages being held in the transaction process. |
| Current Number of Producers | | This displays the number of producers connected to the physical storage destination. |
| Current Number of Active Consumers (Note1) | | This displays the number of active consumers connected to the physical storage destination. |
| Current Number of Backup Consumers (Note1) | | This displays the number of standby consumers connected to the physical storage destination. |
| Current Number of Producer Wildcards (Note2) | | This is an unsupported item. |
| Current Number of Consumers (Note2) | | This displays the number of consumers connected to the physical storage destination. |
| Current Number of Consumer Wildcards (Note2) | | This is an unsupported item. |
| Max Number of Messages | | This displays the maximum number of messages that can be stored in the physical storage destination. |
| Max Total Message Bytes | | This displays the maximum size of messages that can be stored in the physical storage destination. |
| Max Bytes per Message | | This displays the maximum size of individual messages that can be stored in the physical storage destination. |

| Item that is displayed | Content |
|--------------------------------|---|
| Max Number of Producers | This displays the maximum number of producers that can be connected to the physical storage destination. |
| Max Number of Active Consumers | This displays the maximum number of consumers that can receive messages from the physical storage destination. |
| Max Number of Backup Consumers | This displays the maximum number of standby consumers that can receive messages from the physical storage destination. |
| Limit Behavior | <p>This displays ways of responding when messages cannot be stored.</p> <ul style="list-style-type: none"> - FLOW_CONTROL: Producers using the jms connection service put the message accumulation process on standby until messages can be stored in the physical storage destination. Processing is not returned to the producer until the standby status is removed. - REMOVE_OLDEST: Discards the oldest message. Producers are not notified. - REMOVE_LOW_PRIORITY: Discards messages with the lowest priority. Producers are not notified. - REJECT_NEWEST: New messages are rejected. Exceptions are notified to producers only for persistent messages. |
| Consumer Flow Limit | This displays the maximum number of messages being predelivered to one consumer. |
| Is Local Destination | This is an unsupported item. |
| Local Delivery is Preferred | This is an unsupported item. |
| Use Dead Message Queue | <p>This displays whether the dead message queue will be used.</p> <ul style="list-style-type: none"> - true: Dead message queue will be used. - false: Dead message queue will not be 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. |

Note1)

This item is displayed when Queue is specified as the physical storage destination type (-t q).

Note2)

This item is displayed when Topic is specified as the physical storage destination type (-t t).

9.6.16 query svc Subcommand

Synopsis

```
imqcmd query svc -n <service name>
```

Description

This subcommand queries and displays services information.

Options

| Option name | Description |
|-------------|--|
| -n | Specifies the service name. Specify one of the following service names: <ul style="list-style-type: none">- admin: admin connection service- jms: jms connection service |

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd query svc -n admin
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd query svc -n admin
```

Output example

```
Querying the service where:
-----
Service Name (*1)
-----
admin

On the broker specified by:
-----
Host          Primary Port
-----
localhost     17676

Service Name (*2)          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 |

Information displayed

In the following table, notes (*1) and (*2) refer to items in the "Output example" above.

| Item that is displayed | Content |
|-------------------------------------|---|
| Service Name (*1) | This displays the service name specified when the command is run. <ul style="list-style-type: none"> - admin: admin connection service - jms: jms connection service |
| Host | This displays the host name that is given to the message broker when it starts. |
| Primary Port | This displays the port number being used by the message broker when it starts. |
| Service Name (*2) | This displays a list of service names. <ul style="list-style-type: none"> - admin: admin connection service - jms: jms connection service |
| Service State | This displays the status of the service. <ul style="list-style-type: none"> - RUNNING: The service is running. - PAUSED: The service is temporarily stopped. - UNKNOWN: Unconfigured status. - UNINITIALIZED: In the process of being initialized. - INITIALIZED: Initialization process has completed. - STARTED: In the process of starting. - SHUTTINGDOWN: In the process of shutting down. - STOPPED: The service is stopped. - DESTROYED: Has been destroyed. |
| Port Number | This displays the port number that the service will use. The value within the parentheses shows the method for assigning ports. <ul style="list-style-type: none"> - dynamic: Ports are assigned dynamically. - static: Ports are assigned statically. |
| Current Number of Allocated Threads | This displays the number of threads currently being managed by the connection service. (Note1) |
| Current Number of Connections | This displays the number of connections currently connected. |
| Min Number of Threads | This displays the minimum number of threads managed by the connection service. (Note1) |
| Max Number of Threads | This displays the maximum number of threads that can be created. |

Note1)

Threads do not exist in the thread pool immediately after starting the message broker, so there may be occasions when the number of threads managed by the connection service is lower than the minimum thread number.

9.6.17 restart bkr Subcommand

Synopsis

imqcmd restart bkr

Description

This subcommand restarts the message broker operating in REMOTE mode.

Options

None

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

This command can only be used for the message broker operating in REMOTE mode.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd restart bkr
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd restart bkr
```

9.6.18 resume bkr Subcommand

Synopsis

imqcmd resume bkr

Description

This subcommand resumes message broker services.

Options

None

Return value

0: Ended normally

Other than 0: Ended abnormally

Notes

This command is returned normally even if all message broker services have already been started.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd resume bkr
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd resume bkr
```

9.6.19 resume dst Subcommand

Synopsis

```
imqcmd resume dst [-t <physical storage destination type> -n <physical storage destination name>]
```

Description

This subcommand resumes either one or all physical storage destinations.

If a physical storage destination to be resumed is not specified, all physical storage destinations will be resumed.

Options

| Option name | Description |
|-------------|--|
| -t | Specify one of the following physical storage destination types: - q: Queue - t: Topic |
| -n | Specifies the physical storage destination name. |

Return value

0: Ended normally

Other than 0: Ended abnormally

Notes

This command is returned normally even if the specified physical storage destinations have already been started.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd resume dst
```

Solaris32/64 Linux32/64

```
/opt/FJISVisje6/mq/bin/imqcmd resume dst
```

9.6.20 shutdown bkr Subcommand

Synopsis

```
imqcmd shutdown bkr [-time <stop wait time>]
```

Description

This subcommand shuts down the message broker operating in REMOTE mode.

Options

| Option name | Description |
|-------------|---|
| -time | Specifies the number of seconds until shutdown. If omitted, the shutdown process starts immediately. |

Return value

0: Ended normally
Other than 0: Ended abnormally

Notes

This command can only be used for the message broker operating in REMOTE mode.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd shutdown bkr
```

Solaris32/64 Linux32/64

```
/opt/FJISVisje6/mq/bin/imqcmd shutdown bkr
```

9.6.21 update dst Subcommand

Synopsis

```
imqcmd update dst -t <physical storage destination type> -n <physical storage destination name> -o <properties name=values>[[-o properties name=values>]...]
```

Description

This subcommand updates physical storage destination properties.

Options

| Option name | Description |
|-------------|---|
| -t | Specify one of the following physical storage destination types: <ul style="list-style-type: none">- q: Queue- t: Topic |
| -n | Specifies the physical storage destination name. |
| -o | Specifies properties when updating the physical storage destination. For details on the properties that can be specified, refer to " 7.6.7 Physical Storage Destination Generation or Update Properties ". |

Return value

0: Ended normally
Other than 0: Ended abnormally

Notes

Physical storage destination properties that were updated using this command continue to be applicable even if the message broker has been restarted.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqcmd update dst -t q -n JMSQueue -o useDMQ=false
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqcmd update dst -t q -n JMSQueue -o useDMQ=false
```

9.7 imqsvcadm

Name

imqsvcadm - Registers and deletes the message broker

Synopsis

Windows32/64

(1) Execute subcommands
imqsvcadm <subcommand> <option>

(2) Display help
imqsvcadm -h

Description

This command registers or deletes the message broker operating in REMOTE mode as a Windows service. The following subcommands are included:

| Subcommands | Description |
|-------------------------|--------------------------------|
| install | Message broker registration |
| remove | Message broker deletion |
| query | Display message broker options |

Options

| Option name | Description |
|-------------|-------------------------------------|
| -h | Displays help on using the command. |

Return value

0: Ended normally
Other than 0: Ended abnormally

Notes

- Execute this command as a user with administrator privileges.
- If the following message is output, specify the correct option and then re-execute the command.

```
Unknown option "character string specified in options"
```

Example

Help display is performed as follows:

```
C:\Interstage\F3FMisje6\mq\bin\imqsvcadmin -h
Usage:
imqsvcadmin -h Display help
imqsvcadmin query Query information about the service
.
.
.
```

9.7.1 install Subcommand

Synopsis

```
imqsvcadmin install [-vmargs <vmargs>] [-args <brokerArgs>]
```

Description

This subcommand installs the service that will operate the message broker, and specifies the startup options. The service name or display name of the installed message broker will be "Interstage Message Queue Broker (ISJE6)". Also, as the startup method for a registered service is Automatic, startup will be automated the next time the machine is started.

Options

| Option name | Description |
|-----------------|---|
| -vmargs (Note1) | This specifies additional arguments to be passed to the Java VM running the message broker service. When multiple parameters are passed, specify them inside double quotation marks. |
| -args (Note2) | This specifies additional command line arguments to be passed to the message broker service. For details on the imqbrokerd command options that can be specified, refer to "9.5 imqbrokerd". (Note3) When multiple parameters are passed, specify them inside double quotation marks. |

Note1)

If the message below is output, it is assumed that the -vmargs option has been omitted.

```
Could not set JVMArgs to "Character string specified in options" in registry
```

Note2)

If the message below is output, it is assumed that the -args option has been omitted.

```
Could not set ServiceArgs to "Character string specified in options" in registry
```

Note3)

The options below cannot be specified. If the options below are specified, the message broker service will fail to start.

- -init
- -force
- -help
- -h
- -remove
- -vmargs

Specify additional arguments that are to be passed to the Java VM running the message broker service with the -vmargs option of the install subcommand.

Return value

0: Ended normally

Other than 0: Ended abnormally

Notes

- Multiple message broker services cannot be registered.
- To reconfigure a service, delete the service, specify any different startup options with the -args argument, and then reinstall the service.
- In the character string specified in options, the backslash character (\) is treated as the escape character. Enter a backslash twice (\\) if using it as a path delimiter.

Example

Execute the command as follows:

```
C:\Interstage\F3FMisje6\mq\bin\imqsvcadmin install
Installation of service Interstage Message Queue Broker(ISJE6) successful.
```

9.7.2 remove Subcommand

Synopsis

```
imqsvcadmin remove
```

Description

This subcommand removes the message broker service.

Return value

0: Ended normally
Other than 0: Ended abnormally

Example

Execute the command as follows:

```
C:\Interstage\F3FMisje6\mq\bin\imqsvcadmin remove
Service Interstage Message Queue Broker(ISJE6) successful.
```

9.7.3 query Subcommand

Synopsis

```
imqsvcadmin query
```

Description

This subcommand displays the following information about startup options for the imqsvcadmin command:

- Startup method for services (Manual/Automatic)
- Location of service
- Location of Java Runtime
- Values of arguments to be passed to the message broker at startup

Return value

0: Ended normally
Other than 0: Ended abnormally

Example

Execute the command as follows:

When the service has already been registered

```
C:\Interstage\F3FMisje6\mq\bin\imqsvcadmin query
Service Interstage Message Queue Broker(ISJE6) is installed.
```

Display name: Interstage Message Queue Broker(ISJE6)
Start Type: Automatic
Binary location: C:\Interstage\F3FMisje6\mq\bin\imqbrokersvc.exe

When the service has not been registered

C:\Interstage\F3FMisje6\mq\bin\imqsvcadm query
Service Interstage Message Queue Broker(ISJE6) is not installed.

9.8 imqusermgr

Name

imqusermgr - Manages the user information that can be connected to the message broker

Synopsis

(1) Execute subcommands

imqusermgr <subcommand> <option>

(2) Display help

imqusermgr -h

Description

This command manages information of users that can connect to the message broker. The subcommands can be used to add/delete/update/list information about users.

The subcommands are as follows:

| Subcommands | Description |
|------------------------|---|
| add | Adds the user/password to the repository. |
| delete | Deletes the user from the repository. |
| update | Sets the user password or changes its status. |
| list | Displays user information. |

Options

| Option name | Description |
|-------------|-------------------------------------|
| -h | Displays help on using the command. |

Return value

0: Ended normally

Other than 0: Ended abnormally

Notes

Execute this command as a user with administrator privileges.

Example

Help display is performed as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqusermgr -h
imqusermgr usage:

imqusermgr add [-u <username>] [-p <password>] [-g <group>]
.
.
.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqusermgr -h
imqusermgr usage:

imqusermgr add [-u <username>] [-p <password>] [-g <group>]
.
.
.
```

9.8.1 add Subcommand

Synopsis

```
imqusermgr add [-u <username>] [-p <password>] [-g <group>] [-i <broker instance>]
```

Description

This subcommand adds information of a user that can connect to the message broker.

Options

| Option name | Description |
|-------------|---|
| -u | Specify the user name to be registered. If omitted, the system will prompt you to enter the user name. |
| -p | Specify the password to be assigned to the user. If omitted, the system will prompt you to enter the user password. |
| -g | Specify one of the user groups below (if omitted, "user" will be used): <ul style="list-style-type: none">- admin- user- anonymous (unsupported) |
| -i | Specify the message broker instance targeted for operation. The default value is "imqbroker". |

Return value

0: Ended normally

Other than 0: Ended abnormally

Notes

- Asterisks ("*"), commas (","), colons (":"), line breaks and carriage returns cannot be used in the user name.
- An empty string can be specified for the password, however for security reasons we recommend specifying a string at least eight characters long.
- If the user name or password contains spaces, enclose the value in double quotes ("").
- There is no limit to the length of the user name and the password. However, the maximum number of characters that can be entered in the command line may sometimes be restricted by the command shell.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqusermgr add -u test -p test -g user
User repository for broker instance: imqbroker
User test successfully added.
```

Solaris32/64 Linux32/64

```
/opt/FJSVIsje6/mq/bin/imqusermgr add -u test -p test -g user
User repository for broker instance: imqbroker
User test successfully added.
```

9.8.2 delete Subcommand

Synopsis

```
imqusermgr delete -u <username> [-f] [-i <broker instance>]
```

Description

This subcommand deletes user information.

Options

| Option name | Description |
|-------------|--|
| -u | Specify the user name to be deleted. |
| -f | Does not prompt the user to confirm the deletion. |
| -i | Specify the message broker instance targeted for operation. The default value is "imqbroker". |

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

Execute the command as follows:
You will be prompted to confirm the deletion of the user.

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqusermgr delete -u test
User repository for broker instance: imqbroker
Are you sure you want to delete user test? (y/n)[n] y
User test successfully deleted.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqusermgr delete -u test
User repository for broker instance: imqbroker
Are you sure you want to delete user test? (y/n)[n] y
User test successfully deleted.
```

9.8.3 update Subcommand

Synopsis

- (1) Update a user's password
imqusermgr update -u <username> -p <newpassword> [-f] [-i <broker instance>]
- (2) Set the user state to active
imqusermgr update -u <username> -a <state> [-f] [-i <broker instance>]
- (3) Update a user's password and set the user state to active
imqusermgr update -u <username> -p <newpassword> -a <state> [-f] [-i <broker instance>]

Description

This subcommand updates the password that was set for a user and/or the active state of the user.

Options

| Option name | Description |
|-------------|--|
| -u | Specify the user name to be updated. |
| -p | Specify the new password. |
| -a | Specify one of the user states below (a user who is inactive cannot establish a new connection): <ul style="list-style-type: none">- true: User is active- false: User is inactive |
| -f | Does not prompt the user to confirm the updates. |
| -i | Specify the message broker instance targeted for operation. The default value is "imqbroker". |

Return value

- 0: Ended normally
- Other than 0: Ended abnormally

Example

Execute the command as follows:

You will be prompted to confirm the update of user information.

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqusermgr update -u test -a false
User repository for broker instance: imqbroker
Are you sure you want to update user test? (y/n)[n] y
User test successfully updated.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqusermgr update -u test -a false
User repository for broker instance: imqbroker
Are you sure you want to update user test? (y/n)[n] y
User test successfully updated.
```

9.8.4 list Subcommand

Synopsis

```
imqusermgr list [-u <username>] [-i <broker instance>]
```

Description

This subcommand displays 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 has been created in the message broker. |
| Group | This is the name of the group that the user belongs to. - admin - user - anonymous |
| Active State | Shows whether the user can connect to the message broker. - true - false |

Options

| Option name | Description |
|-------------|---|
| -u | Specify the user name to be displayed. If omitted, all users in the message broker instance will be displayed. |
| -i | Specify the message broker instance targeted for operation. The default value is "imqbroker". |

Return value

0: Ended normally

Other than 0: Ended abnormally

Example

Execute the command as follows:

If user is not specified

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqusermgr list
User repository for broker instance: imqbroker
-----
User Name  Group      Active State
-----
admin     admin      true
guest     anonymous  true
test      user       false
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqusermgr list
User repository for broker instance: imqbroker
-----
User Name  Group      Active State
-----
admin     admin      true
guest     anonymous  true
test      user       false
```

If user is specified

Windows32/64

```
C:\Interstage\F3FMisje6\mq\bin\imqusermgr list -u test
User repository for broker instance: imqbroker
-----
User Name  Group      Active State
-----
test       user       false
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/bin/imqusermgr list -u test
User repository for broker instance: imqbroker
-----
User Name  Group      Active State
-----
test       user       false
```

9.9 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 endpoint interface (SEI)
- Service interface
- Other classes required to execute the application - these will also be generated.

In web service client development, client applications that follow JAX-WS are created using the classes generated in this command.

In the web service that is to be developed based on the WSDL set that was created, the material generated in this command should be packaged in the module together with the WSDL set and endpoint implementations, following the web Services for Java EE specification.

wsdl_file

Specify the WSDL file path or URL.

Options

| Option name | Description |
|--------------------------------|--|
| -nogenerate | Only the WSDL set will be obtained (no materials will be generated). The -keep option will be enabled, but no class or source files will be generated. |
| -b <i>path</i> | Path of the binding file that follows the JAX-WS or JAXB specification. The generated content will be customized according to the specified JAX-WS or JAXB external binding file. To specify multiple binding files, specify "-b" at the start for each file. Example: -b fileA -b fileB |
| -catalog <i>path</i> | Path of the catalog file that follows the OASIS XML Catalog specifications. The directory containing the XML referenced in the URL from WSDL or XML Schema is customized according to the specified catalog file. This option will be ignored if the specified file cannot be accessed or the directory cannot be accessed. |
| -d <i>directory</i> | Directory to store the final product. If omitted, the product will be generated and stored in the current directory. |
| -help | Displays help. |
| -httpproxy: <i>host[:port]</i> | When remote files are obtained using HTTP, the specified HTTP proxy server will be used (the default port is 8080). |
| -keep | The WSDL set that was read and the generated source files are retained. Even if the data that was read is not the correct WSDL, it will still be retained. For investigations when a problem has occurred, for example, normally this option should be specified so that the source material can be archived. 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 WSDL set storage directory and file names are converted as shown below. <ul style="list-style-type: none">- When a locally saved WSDL is specified The ":(Windows drive delimiter character)" of the retrieval source is converted to "@". |

| Option name | Description |
|--------------------------|---|
| | <p>Examples) Retrieval source) C:\work\StockQuote\wsdl\StockQuoteProviderService.wsdl Storage destination) C@\work\StockQuote\wsdl\StockQuoteProviderService.wsdl</p> <p>- When a remote WSDL is specified The "http://" of the retrieval source is converted to "http/", and the "? (URL query delimiter character)" of the retrieval source is converted to ".".</p> <p>Examples) Retrieval source) http://ws.example.com/StockQuote/StockQuoteProviderService?wsdl Storage destination) http://ws.example.com/StockQuote/StockQuoteProviderService.wsdl</p> <p>For details on the WSDL set content that is obtained and then stored, refer to the notes below.</p> |
| -p <i>pkg</i> | <p>The Java material that is to be generated will be generated using the specified package name. The content specified in this option will have a higher priority than all WSDL/ schema binding customization for package names and default package name algorithms defined in the specification.</p> |
| -s <i>directory</i> | <p>The WSDL set storage destination and source file generation destination will change to the specified directory. If omitted, the directory specified in the -d option will be used for generating and storing the data. If the -d option is not specified, the current directory will be used. When this option is specified, the -keep option will also be enabled.</p> |
| -verbose | <p>An internal information message that is related to the processing that is executed will be output.</p> |
| -version | <p>Outputs the version information.</p> |
| -wsdllocation <i>URI</i> | <p>Generates the javax.xml.ws.WebServiceClient annotation wsdlLocation attribute value in the specified URL. If this option is omitted, the attribute value will be generated in the path or URL specified in this command. The web service client reads the WSDL from the javax.xml.ws.WebServiceClient annotation wsdlLocation attribute location at the time of the execution. To obtain the WSDL from the path that can be accessed at the time of the execution, specify an appropriate value in this option.</p> |
| -Xauthfile <i>path</i> | <p>If authentication using a user name and password is required for the WSDL file URL, the authentication is performed using the authentication information file specified in this option. The authentication information file content is based on the URL of the WSDL that is obtained. Define the authentication information in the format shown below. http[s]://<user>:<password>@<host>:<port>/<url-path></p> <p>Examples:</p> <ul style="list-style-type: none"> - URL of the WSDL that is obtained http://ws.example.com/StockQuote/StockQuoteProviderService?wsdl - Content defined in the authentication information file (user name: "user", password: "pass") http://user:pass@ws.example.com/StockQuote/StockQuoteProviderService?wsdl |

Return value

- 0: Ended normally
- Other than 0: Ended abnormally

Notes

- When this command is executed, the settings that are configured must enable the JDK 6 java command that is contained in this product in the PATH environment variable.
- The application will run if there is a final product, however for investigations when a problem has occurred, for example, normally the -keep option should be specified so that other material can also be obtained and then archived.

- The content of the WSDL set, that is obtained and stored, is not changed. When a WSDL file references another XML file, that XML file is also obtained and stored automatically. However, as mentioned earlier, the content of the WSDL is not updated. This means that the "XML file URL" recorded in the WSDL is not changed to the "new location" where the XML file is stored. For this reason, the XML file, which is obtained and stored with the WSDL, is not referenced by the WSDL.
- When developing the web service, there is no need to include the product that was generated from this command in the application, except for when the development is based on a WSDL set that was created. However, after the developed module is deployed to the Interstage Java EE 6 DAS service, obtain the WSDL set from the URL that has "?wsdl" in the endpoint, then archive and manage it as an interface definition.
- To develop the web service based on the WSDL set that was created, and not the application, first deploy the module containing the appropriate WSDL to the Interstage Java EE 6 DAS service, then obtain the WSDL set from the URL that has "?wsdl" in the endpoint, and check whether the specified WSDL was published correctly. Note that some changes will be required for the WSDL that was obtained above, such as address information, for the specified WSDL.
- If there is a file with the same file name as the generated file, the file will be overwritten.
- When the special option "-extension" is specified, support for the extended WSDL specification, in addition to the standard specification, and extended functionality that includes experimental functionality will be used. If this is specified without careful consideration, there may be a risk of loss of connectivity or future version application compatibility, or of normal exit without an error notice even for an unsupported or invalid WSDL. Before specifying this option, it is important to understand the content of the input WSDL correctly, investigate the need to specify this option, and check that there are no problems in the WSDL.
- The authentication information defined in the authentication information file that is used in authentication is not encrypted. To prevent authentication information leaks, set access privileges that are appropriate for 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 may be output when ObjectFactory.java is compiled (the content in XXXX/XXXX will vary depending 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

Examples of the execution to generate material from the WSDL that is stored locally are shown below.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\ijwsimport -keep C:\work\StockQuote\wsdl
\StockQuoteProviderService.wsdl
parsing WSDL...

generating code...

compiling code...
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/ijwsimport -keep /tmp/work/StockQuote/wsdl/StockQuoteProviderService.wsdl
parsing WSDL...

generating code...

compiling code...
```

Examples of the execution to obtain the remote WSDL set are shown below.

Windows32/64


```
C:\Interstage\F3FMisje6\glassfish\bin\ijwsimport -nogenerate -s dev\wsdl http://ws.example.com/StockQuote/StockQuoteProviderService?wsdl
parsing WSDL...
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish\bin\ijwsimport -nogenerate -s dev\wsdl http://ws.example.com/StockQuote/StockQuoteProviderService?wsdl
parsing WSDL...
```

9.10 ij6backup

Name

ij6backup - Backs up and exports Java EE 6 resources

Synopsis

ij6backup -d <directory>

Description

This command backs up and exports the resources files used by Java EE 6.

Options

| Option name | Description |
|-------------|--|
| -d | Specifies the full path of the directory name of the Java EE 6 resources backup destination. The directory to be specified must be created before running this command. If the directory does not exist, or if it is not a directory, the command will fail to run, and the resources will not be backed up or exported. |

Return value

0: Ended normally
1: Ended abnormally

Notes

- Execute the command with administrator privileges.
- When running this command, use the procedure in "[Chapter 8 Maintenance\(Resource Backup / migration of Resources to Another Server\)](#)" to run it.
- When running this command, simultaneously back up or export the backup target service resources displayed by the `isprintbackuprsc` command.
- If this command is executed in batch, unexpected problems may occur. If the command was executed in batch, re-execute the command. If you follow the above instructions, the problem will be resolved when the command is re-executed.

Example

Windows32/64

Backs up Java EE 6 resources in the "X:\Backup" directory.

```
C:\Interstage\F3FMisje6\glassfish\bin\ij6backup -d X:\Backup
ij6backup: INFO: ISJE6_OM4000: Java EE 6 resource backup has started. (ISJE6)
ij6backup: INFO: ISJE6_OM4001: Java EE 6 resource backup completed normally. (ISJE6)
```

Solaris32/64 Linux32/64

Backs up Java EE 6 resources in the "/backup" directory.

```
/opt/FJSVisje6\glassfish/bin/ij6backup -d /backup
ij6backup: INFO: ISJE6_OM4000: Java EE 6 resource backup has started. (ISJE6)
ij6backup: INFO: ISJE6_OM4001: Java EE 6 resource backup completed normally. (ISJE6)
```

9.11 ij6restore

Name

ij6restore - Restores and imports Java EE 6 resources

Synopsis

```
ij6restore -d <directory> [-h <hostname>] [-f <filename>]
```

Description

This command restores and imports Java EE 6 resources.

If Java EE 6 resources already exist at the destination to which the resources are to be restored or imported, delete them and then restore or import. Log files, etc., that are not targeted for backup will be deleted when you restore or import.

Options

| Option name | Description |
|-------------|---|
| -d | Specifies the full path of the directory name that backed up the Java EE 6 resources. If the directory does not exist, or if it is not a directory, the command will fail to run, and the resources will not be restored or imported. |
| -h | Specifies the host name of the import destination machine when the host name of the import source and import destination machines is different when the resources are imported. |
| -f | Specifies the IP address and host name configuration file if the host name or IP address of the import source machine and the import destination machine are different when the resources are imported. Items set by the asadmin command are configured in the IP address/host name configuration file specified in the -f option. |

IP address/host name configuration file syntax

```
# 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 and end of the line are ignored.
- Do not insert any spaces before or after = ("equals" sign).

Definition items specified in the IP address/host name configuration file

Note

Be sure to specify the configuration name (IIServer cluster name - config), not the IIServer cluster name and the server instance name. An error will occur if the IIServer cluster name or the server instance name is specified.

- HTTP listeners network addresses

If a value other than "0.0.0.0" was set for the HTTP listeners network address and the IP address of the import source and import destination machines is different, the HTTP listeners network address is set for the following definition items:

```
server-config.network-config.network-listeners.network-listener.${http-listener-id}.address  
${configName}.network-config.network-listeners.network-listener.${http-listener-id}.address
```

For details on definition items, refer to "[7.7.3 Network Configuration 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 and import destination machines is different, the IIOP service network address is set for the following definition items:

```
server-config.iiop-service.iiop-listener.${iiop-listener-id}.address  
${configName}.iiop-service.iiop-listener.${iiop-listener-id}.address
```

For details on definition items, refer to "[7.7.4 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 and import destination machines is different, the admin service network address is set for the following definition items:

```
server-config.admin-service.jmx-connector.${name}.address  
${configName}.admin-service.jmx-connector.${name}.address
```

For details on definition items, refer to "[7.7.5 Managed Service Definition Items](#)".

- JMS service hosts

If the host where the message broker exists changes according to the system mode, the message broker host name must be modified.

- When an IIServer cluster and the message broker exist in the import source machine
The message broker host name must be modified.
- When the message broker host name is modified using a mode in which the IIServer cluster in the import source machine uses the message broker of another machine
The message broker host name must be modified.
- When the message broker host name is not modified using a mode in which the IIServer cluster in the import source machine uses the message broker of another machine
There is no need to modify the message broker host name.

The host name of the message broker is specified by the following definition items:

```
server-config.jms-service.jms-host.${jms_host_name}.host  
${configName}.jms-service.jms-host.${jms_host_name}.host
```

For details on definition items, refer to "[7.7.10 JMS Service Definition Items](#)".

IP address/host name configuration file examples

Example

Example of when the host name is set to "samplehost" and the IP address is set to 192.0.2.1.

```
# HTTP listener network address
server-config.network-config.network-listeners.network-listener.http-listener-1.address=192.0.2.1
server-config.network-config.network-listeners.network-listener.http-listener-2.address=192.0.2.1
IJSERVER001-config.network-config.network-listeners.network-listener.http-listener-1.address=192.0.2.1
IJSERVER001-config.network-config.network-listeners.network-listener.http-listener-2.address=192.0.2.1
IJSERVER002-config.network-config.network-listeners.network-listener.http-listener-1.address=192.0.2.1
IJSERVER002-config.network-config.network-listeners.network-listener.http-listener-2.address=192.0.2.1

# IIOP service network address
server-config.iio-service.iio-listener.orb-listener-1.address=192.0.2.1
IJSERVER001-config.iio-service.iio-listener.orb-listener-1.address=192.0.2.1
IJSERVER002-config.iio-service.iio-listener.orb-listener-1.address=192.0.2.1

# Admin service network addresses
server-config.admin-service.jmx-connector.system.address=192.0.2.1
IJSERVER001-config.admin-service.jmx-connector.system.address=192.0.2.1
IJSERVER002-config.admin-service.jmx-connector.system.address=192.0.2.1

# JMS service host
server-config.jms-service.jms-host.default_JMS_host.host=samplehost
IJSERVER001-config.jms-service.jms-host.default_JMS_host.host=samplehost
IJSERVER002-config.jms-service.jms-host.default_JMS_host.host=samplehost
```

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- Execute the command with administrator privileges.
- When executing this command, use the procedure in ["Chapter 8 Maintenance\(Resource Backup / migration of Resources to Another Server\)"](#) to run it.
- **Solaris32/64 Linux32/64**
After the Java EE 6 resources have been restored or imported, run the `issetsecuritymode` command and configure the security settings. Also, execute the `ij6setoperatorid` command to set the service operator user. For details on the `issetsecuritymode` command, refer to "Reference Manual (Command Edition)" - "Interstage Setup Commands" - "issetsecuritymode"; for details on the `ij6setoperatorid` command, refer to "9.4 ij6setoperatorid".
- If this command is executed in batch, unexpected problems may occur. If the command was executed in batch, re-execute the command. If you follow the above instructions, the problem will be resolved when the command is re-executed.

Example

Windows32/64

Restores Java EE 6 resources from the "X:\Backup" directory:

```
C:\Interstage\F3FMisje6\glassfish\bin\ij6restore -d X:\Backup
ij6restore: INFO: ISJE6_OM4003: Restore of Java EE 6 resources has started. (ISJE6)
ij6restore: INFO: ISJE6_OM4004: Restore of Java EE 6 resources is complete. (ISJE6)
```

Solaris32/64 Linux32/64

Restores Java EE 6 resources from the "/backup" directory:

```
/opt/FJSVisje6/glassfish/bin/ij6restore -d /backup
ij6restore: INFO: ISJE6_OM4003: Restore of Java EE 6 resources has started. (ISJE6)
ij6restore: INFO: ISJE6_OM4004: Restore of Java EE 6 resources is complete. (ISJE6)
```

9.12 pcmistat

Name

pcmistat - Displays the status of the PCMI service

Synopsis

pcmistat pcmiinancedir

Description

This command displays the status of the PCMI service.

States that can be displayed are as follows:

| Item that is displayed | Description |
|------------------------|----------------------|
| started | running |
| stopped | not running |
| starting | starting |
| stopping | stopping |
| unknown | unknown state (Note) |

Note)

The status could not be determined because an error occurred when obtaining the PCMI service status.

If "unknown" is displayed, take the action indicated below.

- The PCMI service may have hung, etc. Wait for a while and then retry running the pcmistat command to check the status. If the problem cannot be solved, check the error message details output to the event log and system log and take the action indicated.

- Windows32/64

Privileges to execute commands may not have been set for the user who executed the command. Check the user's privileges and if the user does not have command execution privileges, log in as a user who does have command execution privileges and re-execute the command.

Operands

| Operand name | Omission | Description |
|---------------|--------------|--|
| pcmiinancedir | Not possible | Specify the full path of the following: Windows32/64 [Java EE 6 common directory]\pcmi\isje6 Solaris32/64 Linux32/64 [Java EE 6 common directory]/pcmi/isje6 |

Return value

- 0: running
- 1: not running

- 2: starting
- 3: stopping
- 4: unknown state
- 99: failed to obtain the status of the PCMI service

Notes

- **Windows32/64**
Execute this command as a user with administrator privileges.
- **Solaris32/64 Linux32/64**
Only Interstage operator group users can execute this command. For details on the Interstage operator group, refer to "[5.2.2 Java EE 6 Operating Environment Roles](#)".

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMpcmi\bin\pcmistat C:\Interstage\F3FMisje6\var\pcmi\isje6
started
```

Solaris32/64 Linux32/64

```
/opt/FJSVpcmi/bin/pcmistat /var/opt/FJSVisje6/pcmi/isje6
started
```

9.13 pcmilistprocesses

Name

pcmilistprocesses - Displays the status of the processes (Interstage Java EE 6 DAS service or server instance) being monitored by the PCMI service.

Synopsis

pcmilistprocesses pcmiinstancedir

Description

This command displays the status of the processes being monitored by the PCMI service. Only processes that are running are displayed, paused processes will not be displayed.

The content of display items and descriptions of each display item are given below:

| Item that is displayed | Description |
|------------------------|--|
| process | This displays the server instance name. |
| PID | This displays the process ID. |
| status | The status of the process is displayed using one of the following: <ul style="list-style-type: none"> - monitoring The process has completed start processing, and the PCMI service is monitoring processes. - starting The process being monitored by the PCMI service is starting. Monitoring of the process is not being performed. |

| Item that is displayed | Description |
|------------------------|--|
| | <ul style="list-style-type: none"> - stopping The process that was being monitored by the PCMI service is stopping. Monitoring of the process is not being performed. - restarting The process that was being monitored by the PCMI service is restarting. |
| time | This displays the datetime that the processing status was modified, in the following format: "yyyy/mm/dd hh:mm:ss". |

Operands

| Operand name | Omission | Description |
|-----------------|--------------|---|
| pcmiinstancedir | Not possible | Specify the full path of the following: <div style="background-color: #d9ead3; padding: 2px;">Windows32/64</div> [Java EE 6 common directory]\pcmi\isje6 <div style="background-color: #d9ead3; padding: 2px;">Solaris32/64</div> <div style="background-color: #d9ead3; padding: 2px;">Linux32/64</div> [Java EE 6 common directory]/pcmi/isje6 |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- Windows32/64

Execute this command as a user with administrator privileges.
- Solaris32/64

Linux32/64

Only Interstage operator group users can execute this command. For details on the Interstage operator group, refer to "[5.2.2 Java EE 6 Operating Environment Roles](#)".
- Execute this command when the PCMI service is operating.
- If the PID is shown as "unknown" or the status is shown as "starting" when this command is executed, this may be because the process being monitored by the PCMI service was starting and the process ID could not be obtained. Wait for a while and then run the command again to check the process status.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMpcmi\bin\pcmilistprocesses C:\Interstage\F3FMisje6\var\pcmi\isje6
process                PID      status      time
-----
server                 8112    monitoring  2012/12/20 18:20:21
IJServer001            8113    monitoring  2012/12/20 18:20:22
IJServer002            8114    starting   2012/12/20 18:20:22

Command successfully.
```

Solaris32/64

Linux32/64

```

/opt/FJSVpcmi/bin/pcmilistprocesses /var/opt/FJSVisje6/pcmi/isje6
process                PID      status      time
-----
server                 8112    monitoring  2012/12/20 18:20:21
IJServer001           8113    monitoring  2012/12/20 18:20:22
IJServer002           8114    starting   2012/12/20 18:20:22

Command successfully.

```

9.14 wscadmin

Name

wscadmin - Manages web server connectors

Synopsis

wscadmin <subcommand> <option>

Description

This command performs operating environment setup for web server connectors, and linkage settings for web servers and IJServer clusters. It performs linkage setting for web servers and IJServer clusters running on different machines.

Note that you must use the asadmin command for linkage setting of web servers and IJServer clusters running on the same machine. For details, refer to "9.1.10 Subcommands - Category:Web Server Linkage".

The wscadmin command contains the following subcommands:

| Subcommand | Description |
|---|---|
| create-env | This creates operating environments for web server connectors |
| delete-env | This deletes operating environments for web server connectors |
| update-cluster-config | This configures web server connectors |
| update-log-config | This configures log output function operations |
| update-fault-monitor-config | This configures fault monitoring function operations |
| list-web-servers | This displays a list of web servers |
| add-instance-ref | This adds server instance information |
| delete-instance-ref | This deletes server instance information |
| add-application-ref | This adds applications of the distribution target |
| delete-application-ref | This deletes applications of the distribution target |
| add-virtual-host-ref | This adds virtual host receiving requests |
| delete-virtual-host-ref | This deletes virtual host receiving requests |

Notes

- The following users can execute the wscadmin command:

Windows32/64

OS system administrators

Solaris32/64 Linux32/64

Interstage operator group users

- The wscadmin command cannot be executed if a wscadmin command is still running. This also applies to other users.
- If a web server name is specified with the wscadmin command, alphabetic characters are treated as follows:

Windows32/64

Alphabetic characters are not case-sensitive.

Solaris32/64 Linux32/64

Alphabetic characters are case-sensitive.

- Values that can be specified with the wscadmin command for IJServer cluster names are shown below:
 - Alphanumeric characters and the underscore character ("_")
 - An underscore character ("_") cannot be used as the first or last character
 - A maximum of 28 characters

Note that alphabetic characters are case-sensitive.

- IPv6 addresses cannot be specified with the wscadmin command.
- Values that can be specified with the wscadmin command for context roots are shown below:
 - Alphanumeric, "+", "-", ".", "_", "\$", "/"
 - If using ".", it must be used with other characters
 - Specify "/" in root context
 - A maximum 64 characters (excluding the leading '/')

Note that if the specified value does not begin with a forward slash ("/"), one will be added.

9.14.1 create-env Subcommand

Name

create-env - Creates operating environments for web server connectors

Synopsis

wscadmin create-env --target <target>

Description

This command creates a web server connector operating environment for web servers.

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specifies the name of the web server that creates the web server connector operating environment. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Configuration when created (default value)

| Item | Configuration when created (default value) |
|----------------------|---|
| Log output directory | <p>Windows32/64 C:\Interstage\F3FMwsc\logs\jk2\<<web server name></p> <p>Solaris32/64 Linux32/64 /opt/FJSVwsc/logs/jk2/<web server name></p> |
| Log file rollover | Log size: 1MB |
| History size | 1 |
| Debug information | Does not output |

Notes

- There is no need to run this command for the web server created during installation, as a web server connector operating environment will also be created during installation.
- If you created a web server, and executed this subcommand to create a web server connector operating environment, you must edit the web server environment definition file (httpd.conf) to configure the web server so that it calls the web server connector after this command is executed.

Delete any "#" symbols from the start of the line in the following web server environment definition file (httpd.conf), and make the setting valid.

Windows32/64

```
#LoadModule ahs22_redirector2_module "C:/Interstage/F3FMwsc/gateway/ahs2.2/mod_ahs22_redirector2.so"
```

Solaris32/64 Linux32/64

```
#LoadModule ahs22_redirector2_module "/opt/FJSVwsc/gateway/ahs2.2/mod_ahs22_redirector2.so"
```

If the above comments are not deleted, web server connector calls from the web server will not be performed. You will get error code 404 (Not Found) even if you specify the URL for the application deployed to the linked IJServer cluster from the client browser, because it does not exist on the web server.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMwsc\bin\wscadmin create-env --target FJapache
```

Command create-env executed successfully.

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin create-env --target FJapache
```

Command create-env executed successfully.

9.14.2 delete-env Subcommand

Name

delete-env - Deletes operating environments for web server connectors

Synopsis

```
wscadmin delete-env --target <target>
```

Description

This subcommand deletes web server connector operating environments for web servers.

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --target | None | Specifies the name of the web server that deletes the web server connector operating environment. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- When deleting a web server connector environment with this command, perform the following procedure:
 1. Stop the web server.
 2. Edit the corresponding web server environment definition file (httpd.conf) and stop the call of web server connectors from web servers.
Add "#" to the start of the following lines in web server environment definition files (httpd.conf), and make it a comment.

Windows32/64

```
LoadModule ahs22_redirector2_module "C:/Interstage/F3FMwsc/gateway/ahs2.2/  
mod_ahs22_redirector2.so"
```

Solaris32/64 Linux32/64

```
LoadModule ahs22_redirector2_module "/opt/FJSVwsc/gateway/ahs2.2/mod_ahs22_redirector2.so"
```

If the above is not turned into a comment, although calls of web server connectors from web servers will be performed, web server connector startup will fail because the web server connector environment does not exist, and an error message will be output to the system log/event log.

3. Execute the delete-env subcommand.
 4. Start the web server.
- If the default value for the log output directory (configured when the create-env subcommand is executed) has been changed using the update-log-config subcommand, the log files output to the new directory will not be deleted. Delete these log files where necessary.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMwsc\bin>wscadmin delete-env --target FJapache
```

```
Command delete-env executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin delete-env --target FJapache
```

```
Command delete-env executed successfully.
```

9.14.3 update-cluster-config Subcommand

Name

update-cluster-config - Configures web server connectors

Synopsis

```
wscadmin update-cluster-config [--sendreivetimeout=<sendreceive_time_out>] [--maxprocessors=<max_processors>] [--webserver=<web_server_name>] --target <target>
```

Description

This subcommand configures web server connector operations.

Options

| Option name | Mnemonic name | Description |
|--------------------|---------------|---|
| --sendreivetimeout | None | Specifies send and receive timeouts (length of time until communication is cut if communication with the web container has been lost) from 1 to 2147483647 (in seconds). If omitted, settings will not be updated. The value, immediately after the web server linkage is configured is "600". |
| --maxprocessors | None | Specifies the maximum number of connections to the web container. Enter a value from 0 to 2048. Specifying 0 means there is no limit. If omitted, settings will not be updated. The value, immediately after the web server linkage is configured is "0". |
| --webserver | None | Specifies the name of the web server to be configured. If omitted, all web servers relevant to the --target will be subject to configuration. |
| --target | None | Specifies the cluster name of the IJServer or the instance name (server) of the Interstage Java EE 6 DAS service to be configured, |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

You must use the asadmin command [update-web-server-connector-config](#) subcommand when web servers and IJServer clusters are running on the same machine.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMwsc\bin>wscadmin update-cluster-config --webserver=FJapache --target IJserver001
```

Command update-cluster-config executed successfully.

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin update-cluster-config --webserver=FJapache --target IJserver001
```

Command update-cluster-config executed successfully.

9.14.4 update-log-config Subcommand

Name

update-log-config - Configures log output function operations

Synopsis

```
wscadmin update-log-config [--directory=<log_directory>] [--rolloversize=<roll_over_size>] [--rollovertimestart=<roll_over_time_start> --rollovereverytime=<roll_over_every_time>] [--historysize=<history_size>] [--debug[=true|false]] --target <target>
```

Description

This subcommand configures web server connector log output.

Options

| Option name | Mnemonic name | Description |
|---------------------|---------------|---|
| --directory | None | Specifies the full path of the log output directory. If omitted, settings will not be updated. |
| --rolloversize | None | Specifies the log size (the maximum size of log files). Enter a value from 1 to 512 (MB). If the size is specified, when the log file reaches the specified size, rollover is performed. If omitted, settings will not be updated. However, if --rollovertimestart is specified, the settings will be deleted. |
| --rollovertimestart | None | Specifies the start time for rollover. Enter a value from 0 to 23. If this option is specified, --rollovereverytime must also be configured. If this option is specified, the web server starts, and when the specified time is reached, the log file will roll over at the point when the log is first written to. If omitted, settings will not be updated. However, if --rolloversize is specified, the settings will be deleted. |
| --rollovereverytime | None | Specifies the rollover interval. Enter a value from 1 to 24 (hours). If this option is specified, --rollovertimestart must also be configured. If this option is specified and the time specified in --rollovertimestart is reached, the log file will roll over whenever the log is written to after the specified time is reached. If omitted, settings will not be updated. However, if --rolloversize is specified, the settings will be deleted. |
| --historysize | None | Specifies the number of generations of rolled over log files that will be archived. Enter a value from 1 to 9. If the number of archived log files exceeds the number of generations that were specified, the oldest generation log file is deleted. If omitted, settings will not be modified. |
| --debug | None | Specifies whether or not to output debugging information to a log file. If omitted, settings will not be modified. |
| --target | None | Specifies the web server name to be configured. |

Return value

0: Ended normally
1: Ended abnormally

Notes

- **Solaris32/64 Linux32/64**
This subcommand cannot be run during the operation of web servers specified in "target".
- Notes on the log output directory are shown below.
 - **Windows32/64**
If the log output directory that was specified does not exist, a new one is created when the log is output.
 - **Solaris32/64 Linux32/64**
 - The user who executes the web server communication process is the owner. Specify a directory that can be written to by that user.
 - The default user who executes the web server communication process is "nobody".
 - If the log output directory that was specified does not exist, a new one is created the next time the web server starts.
 - The directory name cannot include "\${serverroot}".
 - The following symbols cannot be specified:
 - **Windows32/64**
Hash tags (#), double quotes ("), commas (,), forward slashes (/), semi colons (;), asterisks (*), question marks (?), greater-than signs (>), less-than signs (<), or pipes (|)
 - Colons (:) can be used only as drive delimiters.
 - **Solaris32/64 Linux32/64**
Hash tags (#)
- Specify the following as the maximum length for the directory:
 - **Windows32/64**
127 bytes or less
 - **Solaris32/64 Linux32/64**
255 bytes or less
- Even if the output directory is changed, the log files that were output to this directory before it was changed will not be deleted. Delete these log files where necessary.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMwsc\bin>wscadmin update-log-config --rolloversize=3 --historysize=2 --target FJapache  
Command update-log-config executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin update-log-config --rolloversize=3 --historysize=2 --target FJapache  
Command update-log-config executed successfully.
```

9.14.5 update-fault-monitor-config Subcommand

Name

update-fault-monitor-config - Configures fault monitoring function operations

Synopsis

```
wscadmin update-fault-monitor-config --method <method> [--checkinterval=<check_interval>] [--responsewaittime=<response_wait_time>] [--retrycount=<retry_count>] [--startupwaittime=<startup_wait_time>] --target <target>
```

Description

This subcommand configures the operation of the fault monitoring function

To enable the fault monitoring function, you must configure the fault monitoring method with this subcommand.

Options

| Option name | Mnemonic name | Description |
|--------------------|---------------|--|
| --method | None | Specifies one of the following as the fault monitoring method: <ul style="list-style-type: none">- none: Fault monitoring is not performed- ping: Monitoring is performed through a ping.- port: Monitoring is performed through a port |
| --checkinterval | None | Specifies the interval at which fault monitoring will be performed. Enter a value from 1 to 99999 (seconds). If omitted, settings will not be updated. If this is omitted during initial configuration, the interval will be 60 seconds. |
| --responsewaittime | None | Specifies the wait time for a response from the server instance. Enter a value from 1 to 99 (seconds). If omitted, settings will not be updated. If this is omitted during initial configuration, the interval will be 10 seconds. |
| --retrycount | None | Specifies the number of retries required before determining there has been an error. Enter a value from 0 to 99999. If omitted, settings will not be updated. If this is omitted during initial configuration, there will be three retries. |
| --startupwaittime | None | If you are using fault monitoring, this specifies the wait time for the startup of fault monitoring on the web server connector after the web server starts. Enter a value from 0 to 600 (seconds). If this is omitted, settings will not be updated. If omitted during initial configuration, the interval will be 30 seconds. |
| --target | None | Specifies the web server name to be configured. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- If the web server connector and Web Server Connector (for Interstage HTTP Server 2.2) are used together, the same name should not be used for the web server that performs fault monitoring.
- Although it is possible to run this subcommand in editions of the product that do not have the fault monitoring function, fault monitoring will not operate even if you configure it.

Example

Execute the command as follows:

```
Windows32/64
```

```
C:\Interstage\F3FMwsc\bin\wscadmin update-fault-monitor-config --method ping --target FJapache
```

```
Command update-fault-monitor-config executed successfully.
```

[Solaris32/64](#) [Linux32/64](#)

```
/opt/FJSVwsc/bin/wscadmin update-fault-monitor-config --method ping --target FJapache
```

```
Command update-fault-monitor-config executed successfully.
```

9.14.6 list-web-servers Subcommand

Name

list-web-servers - Displays a list of web servers

Synopsis

```
wscadmin list-web-servers [--detail]
```

Description

This subcommand displays a list of web servers.

The combinations of web servers and linked IJServer clusters are displayed.

If you specify the --detail option, detailed information such as the following is displayed:

- Information on linked IJServer cluster server instances and deployed applications
- Information on log output directories and rollover settings
- Information on fault monitoring methods and fault monitoring settings

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --detail | None | This displays detailed information for all web servers. |

Return value

0: Ended normally

1: Ended abnormally

Content shown in detailed information

| Item | | Content |
|-----------|-----------------|---|
| WebServer | | Web server name |
| | IJServerCluster | Names of linked IJServer clusters. If multiple linked IJServer clusters have been configured, this block is displayed repeatedly the corresponding number of times. |
| | Address | Server instance information is displayed in the following formats: IP Address : Port number If multiple server instances have been configured, they are displayed repeatedly the corresponding number of times. |
| | Identifier | Servlet container identifiers corresponding to server instances |
| | Application | Context root of web applications deployed to IJServer clusters. Displays "/" for root context. |

| Item | | Content |
|------|-----------------------|---|
| | | If multiple web applications have been configured, they are displayed repeatedly the corresponding number of times. |
| | SendReceiveTimeout | Specifies send and receive timeouts (length of time until communication is cut if communication with the web container has been lost) from 1 to 2147483647 (in seconds). |
| | MaxProcessors | Maximum number of connections to the web container |
| | VirtualHost | Virtual host is displayed in the following formats: IP address: Port/Server name of virtual host If multiple virtual hosts have been configured, they are displayed repeatedly the corresponding number of times. |
| | Log Directory | Log output directory |
| | RolloverMode | Basis for log file rollovers. "SIZE" or "TIME" |
| | RolloverSize | Maximum log file size |
| | RolloverTimeStart | Time at which the rollover will start |
| | RolloverEverytime | Specifies the interval (timing) for log file rollover |
| | HistorySize | Number of generations of rolled over log files that will be archived |
| | Debug | Output of debug information to log. "OFF" or "ON" |
| | FaultMonitoringMethod | Fault monitoring method. "none" or "ping" or "port" |
| | CheckInterval | Interval for performing fault monitoring |
| | ResponseWaitTime | Wait time for a response from the server instance |
| | RetryCount | Number of retries required before determining there has been a fault |
| | StartupWaitTime | Wait time for the startup of the web server connector's fault monitoring when the web server starts |

Notes

- Log output settings information may differ according to the RolloverMode.
 - If "RolloverMode = SIZE", then: RolloverSize
 - If "RolloverMode = TIME", then: RolloverTimeStart, RolloverEverytime
- If fault monitoring settings information (under "FaultMonitoringMethod") has been configured, it will be output after that. There will be no output in environments where fault monitoring has not been configured.
- Information display for the -- detail option may be added depending upon future feature enhancements. Consider the following if using output of this subcommand:
 - Do not assume that only the current output information exists.
 - Do not expect that specific information will always be output after the output of certain information.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMwsc\bin\wscadmin list-web-servers
*FJapache    IJServer001,IJServer002
*web001     IJServer001
*web002
```

```
web003
Command list-web-servers executed successfully.
```

* Denotes a web server that has completed creation of the web server connector operating environment with the create-env subcommand.

Solaris32/64 **Linux32/64**

```
/opt/FJSVwsc/bin/wscadmin list-web-servers

..... Examples shown are the same as Windows.....
```

If the --detail option is being used, it is executed as follows:

Windows32/64

```
C:\Interstage\F3FMwsc\bin\wscadmin list-web-servers --detail
WebServer = FJapache
  IJServerCluster = IJServer001
    Address = 127.0.0.1:28090
      Identifier = IJServer001_001
    Address = 127.0.0.1:28091
      Identifier = IJServer001_002
    Application = /test_appl
    Application = /test_app2
    SendReceiveTimeout = 600
    MaxProcessors = 0
    VirtualHost = 192.0.2.2:81/virtualhost1
    VirtualHost = 192.0.2.3:81/virtualhost2
  IJServerCluster = IJServer002
    Address = 127.0.0.1:28092
      Identifier = IJServer002_001
    Address = 127.0.0.1:28093
      Identifier = IJServer002_002
    Application = ROOT
    SendReceiveTimeout = 600
    MaxProcessors = 0
  Log Directory = C:\Interstage\F3FMwsc\logs\jk2\FJapache
  RolloverMode = SIZE
  RolloverSize = 1
  HistorySize = 1
  Debug = OFF
  FaultMonitoringMethod = ping
  CheckInterval = 60
  ResponseWaitTime = 10
  RetryCount = 3
  StartupWaitTime = 30
WebServer = web001
  IJServerCluster = IJServer001
  ..The rest has been omitted...
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVwsc/bin/wscadmin list-web-servers --detail

..... Apart from the log output directory, all the examples shown are the same as
Windows.....

Log Directory = /opt/FJSVwsc/logs/jk2/FJapache
```

9.14.7 add-instance-ref Subcommand

Name

add-instance-ref - Adds server instance information

Synopsis

```
wscadmin add-instance-ref --webserver <web_server_name> [--identifier <identifier>] --target <target> address
```

Description

This command adds server instance information to IJServer cluster linkage settings on the web server.

It adds linkage settings when the linkage settings for web server and IJServer cluster have not been specified.

When adding multiple server instances, run this subcommand repeatedly.

Options

| Option name | Mnemonic name | Description |
|--------------|---------------|--|
| --webserver | None | Specifies the web server name to be configured. |
| --identifier | None | Specifies the Servlet container identifier. If omitted, this is allocated automatically in the "IJServer cluster name serial number_001" format. You can specify Servlet container identifiers with alphanumeric characters and an underscore character (_). However, identifiers that exceed 32 characters cannot be specified. |
| --target | None | Specifies the cluster name of the IJServer that will have a server instance added, or the instance name (server) of the Interstage Java EE 6 DAS service. |

Operands

| Operand name | Omission | Description |
|--------------|--------------|--|
| address | Not possible | Specifies the IP address and the port number of the HTTP listener of the server instance to be added to the linkage settings, in the format: <IP address>:<port number>. Example: 192.0.2.1:28092 |

Return value

0: Ended normally

1: Ended abnormally

Notes

- When changing the IP address and port number, perform the follow procedure:
 1. Display detail information with the list-web-servers subcommand, and check the servlet container identifiers.
 2. Delete the target server instance information with the delete-instance-ref subcommand.
 3. When executing the add-instance-ref subcommand, specify the same servlet container identifier as the one used before deletion with the --identifier option. Do not omit the servlet container identifier. If the servlet container identifier is omitted, assignment will be automatic, and the servlet container identifier may be different to the one used before deletion. For this reason, requests that used a session may be assigned to a server instance different from the original one.
 4. Configure as necessary using the update-cluster-config, add-application-ref, and add-virtual-host-ref subcommands.

- In configurations where requests are assigned to multiple web servers by a load balancer, if the load balancer performs allocation without regard to the HTTP session, it is necessary to set servlet container identifiers as follows:
 - Servlet container identifiers must be configured for all server instances able to be allocated by the load balancer. This is because requests may be allocated to server instances connected to other web servers, because the load balancer allocates without regard to the HTTP session.
 - Use the same settings for servlet container identifiers on all web servers connected to the load balancer.
 - Do not omit the servlet container identifier.
- When operating web servers and IJServer clusters on the same machine, use the `asadmin` command [create-web-server-ref](#) subcommand.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMwsc\bin\wscadmin add-instance-ref --webserver FJapache --target IJServer001
192.0.2.1:28092
```

Command `add_instance_ref` executed successfully.

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin add-instance-ref --webserver FJapache --target IJServer001 192.0.2.1:28092
```

Command `add_instance_ref` executed successfully.

9.14.8 delete-instance-ref Subcommand

Name

`delete-instance-ref` - Deletes server instance information

Synopsis

`wscadmin delete-instance-ref --webserver <web_server_name> --target <target> address`

Description

This subcommand deletes server instance information from the web server and IJServer cluster linkage settings.

If all instance information has been deleted, the settings for linking web servers and IJServer clusters will be deleted.

When deleting multiple server instances, run this subcommand repeatedly.

Options

| Option name | Mnemonic name | Description |
|--------------------------|---------------|---|
| <code>--webserver</code> | None | Specifies the web server name to be configured. |
| <code>--target</code> | None | Specifies the cluster name of the IJServer that will have a server instance deleted, or the instance name (server) of the Interstage Java EE 6 DAS service. |

Operands

| Operand name | Omission | Description |
|----------------------|--------------|---|
| <code>address</code> | Not possible | Specifies the IP address and the port number of the HTTP listener of the server instance to be deleted from the linkage settings in the format: <code><IP address>:<port number></code> . |

| Operand name | Omission | Description |
|--------------|----------|--|
| | | Example: 192.0.2.1:28092 Specify "all" to delete all server instance information. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- When there is one server instance in an IJServer cluster, if you execute the delete-instance-ref subcommand, the linkage with the IJServer cluster is removed and the settings for each IJServer cluster are lost. After executing the add-instance-ref subcommand, configure as necessary using the update-cluster-config subcommand again.
- When operating web servers and IJServer clusters on the same machine, use the asadmin command [delete-web-server-ref](#) subcommand.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMwsc\bin>wscadmin delete-instance-ref --webserver FJapache --target IJServer001
192.0.2.1:28092
Command delete-instance-ref executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin delete-instance-ref --webserver FJapache --target IJServer001 192.0.2.1:28092
Command delete-instance-ref executed successfully.
```

To delete all server instances, execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMwsc\bin>wscadmin delete-instance-ref --webserver FJapache --target IJServer001 all
Command delete-instance-ref executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin delete-instance-ref --webserver FJapache --target IJServer001 all
Command delete-instance-ref executed successfully.
```

9.14.9 add-application-ref Subcommand

Name

add-application-ref - Adds applications of the distribution target

Synopsis

```
wscadmin add-application-ref --webserver <web_server_name> --target <target> application_name
```

Description

This subcommand adds applications of the distribution target to the IJServer cluster settings of the web server connector.

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --webserver | None | Specifies the web server name to be configured. |
| --target | None | Specifies the cluster name of the IJServer or the instance name (server) of the Interstage Java EE 6 DAS service to be configured |

Operands

| Operand name | Omission | Description |
|------------------|--------------|--|
| application_name | Not possible | Specifies the context root of applications deployed to IJServer clusters. Displays "/" for root context. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

When operating web servers and IJServer clusters on the same machine, use the asadmin command [create-web-server-ref](#) subcommand.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMwsc\bin\wscadmin add-application-ref --webserver FJapache --target IJServer001
SampleAppr1
Command add-application-ref executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJISVwsc/bin/wscadmin add-application-ref --webserver FJapache --target IJServer001 SampleAppr1
Command add-application-ref executed successfully.
```

9.14.10 delete-application-ref Subcommand

Name

delete-application-ref - Deletes applications of the distribution target

Synopsis

```
wscadmin delete-application-ref --webserver <web_server_name> --target <target> application_name
```

Description

This subcommand deletes applications of the distribution target from the IJServer cluster settings of the web server connector.

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --webserver | None | Specifies the web server name to be configured. |
| --target | None | Specifies the cluster name of the IJServer, or the instance name (server) of the Interstage Java EE 6 DAS service to be configured. |

Operands

| Operand name | Omission | Description |
|------------------|--------------|--|
| application_name | Not possible | Specifies the context root of web applications deployed to IJServer clusters. Displays "/" for root context. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMwsc\bin\wscadmin delete-application-ref --webserver FJapache --target IJServer001
SampleAppr1
```

Command delete-application-ref executed successfully.

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin delete-application-ref --webserver FJapache --target IJServer001 SampleAppr1
```

Command delete-application-ref executed successfully.

9.14.11 add-virtual-host-ref Subcommand

Name

add-virtual-host-ref - Adds virtual host receive requests

Synopsis

```
wscadmin add-virtual-host-ref --webserver <web_server_name> --target <target> virtual_host_name
```

Description

This subcommand adds a virtual host that receives requests for applications deployed to connected IJServer clusters.

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|--|
| --webserver | None | Specifies the web server name to be configured. |
| --target | None | Specifies the IJServer cluster name , or the instance name (server) of the Interstage Java EE 6 DAS service to be configured |

Operands

| Operand name | Omission | Description |
|-------------------|--------------|--|
| virtual_host_name | Not possible | Specifies the virtual host that receives requests in one of the following formats: <ul style="list-style-type: none"> - <IP address>:<port number>/<virtual host name> - <IP address>/<virtual host name> Note that virtual hosts where only the IP address is different cannot be configured. |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- To use the virtual host on the IJServer cluster, it is necessary to set the following directives in the web server environment definition file (httpd.conf).
 - When specifying the virtual_host_name in the format "<IP address>:<port number>/<virtual host name>"
 1. Add "UseCanonicalPhysicalPort On".
 2. If accessing something other than the virtual host name from the client, set "UseCanonicalName" to "On".
 - When specifying the virtual_host_name in the format "<IP address>/<virtual host name>"
 - If accessing something other than the virtual host name from the client, set "UseCanonicalName" to "On".
- This command can specify an unconfigured virtual host. The "Host name of the server" of the virtual host must be configured in order to use a virtual host on an IJServer cluster.
- If the virtual host that receives requests is not configured with this command, it will receive requests from all virtual hosts. This command is normally used with the purpose of restricting the virtual hosts that receive requests.
- When operating web servers and IJServer clusters on the same machine, use the create-virtual-host-ref subcommand of the asadmin command.

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMwsc\bin>wscadmin add-virtual-host-ref --webserver FJapache --target IJServer001
192.0.2.1:81/virtualhost1
Command add-virtual-host-ref executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin add-virtual-host-ref --webserver FJapache --target IJServer001 192.0.2.1:81/
virtualhost1
Command add-virtual-host-ref executed successfully.
```

9.14.12 delete-virtual-host-ref Subcommand

Name

delete-virtual-host-ref - Deletes virtual host receive requests

Synopsis

```
wscadmin delete-virtual-host-ref --webserver <web_server_name> --target <target> virtual_host_name
```


Description

This subcommand deletes virtual hosts that receive requests for applications deployed to connected IJServer clusters.

Options

| Option name | Mnemonic name | Description |
|-------------|---------------|---|
| --webserver | None | Specifies the web server name to be configured. |
| --target | None | Specifies the IJServer cluster name or the instance name (server) of the Interstage Java EE 6 DAS service to be configured, |

Operands

| Operand name | Omission | Description |
|-------------------|--------------|--|
| virtual_host_name | Not possible | Specifies the "virtual hosts that receive requests" that are to be deleted in one of the following format: - <IP address>:<port number>/<virtual host name> - <IP address>/<virtual host name> |

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- If the virtual host that receives requests is not configured, it will receive requests from all virtual hosts. For this reason, if all the definitions in the virtual host are deleted with this command, then rather than no longer receiving requests from that virtual host, requests will instead be received from all virtual hosts.
- When operating web servers and IJServer clusters on the same machine, use the asadmin command [delete-virtual-host-ref subcommand](#).

Example

Execute the command as follows:

Windows32/64

```
C:\Interstage\F3FMwsc\bin>wscadmin delete-virtual-host-ref --webserver FJapache --target IJServer001 192.0.2.1:81/virtualhost1
```

Command delete-virtual-host-ref executed successfully.

Solaris32/64 Linux32/64

```
/opt/FJSVwsc/bin/wscadmin delete-virtual-host-ref --webserver FJapache --target IJServer001 192.0.2.1:81/virtualhost1
```

Command delete-virtual-host-ref executed successfully.

9.15 wscbackup

Name

wscbackup - Backs up and exports the Web Server Connector (for Interstage HTTP Server 2.2) resources

Synopsis

```
wscbackup -d <directory>
```

Description

This command backs up the Web Server Connector (for Interstage HTTP Server 2.2) resources.

Options

| Option name | Description |
|-------------|--|
| -d | Specifies the full paths of the backup destination directories of the Web Server Connector (for Interstage HTTP Server 2.2) resources. The directories must exist before this command is run. If a specified directory does not exist, the command will fail to run, and the resources will not be backed up or exported. |

Return value

0: Ended normally
1: Ended abnormally

Notes

- This command can only be executed by the system administrator.
- Log files will not be backed up.
- Execute this command when Interstage is in a stopped state.
- When running this command, follow the procedure in "[Chapter 8 Maintenance\(Resource Backup / migration of Resources to Another Server\)](#)".
- When running this command, simultaneously back up and export the backup target service resources displayed by the `isprintbackprsc` command.

Example

Windows32/64

Backs up Web Server Connector (for Interstage HTTP Server 2.2) resources to the "X:\Backup" directory.

```
C:\Interstage\F3FMwsc\bin>wscbackup -d X:\Backup
```

Solaris32/64 **Linux32/64**

Backs up Web Server Connector (for Interstage HTTP Server 2.2) resources to the "/backup" directory.

```
/opt/FJSVwsc/bin/wscbackup -d /backup
```

9.16 wscrestore

Name

`wscrestore` - Restores and imports the Web Server Connector (for Interstage HTTP Server 2.2) resources

Synopsis

```
wscrestore -d <directory> [-h <host_table>]
```

Description

This command restores and imports Web Server Connector (for Interstage HTTP Server 2.2) resources.

Options

| Option name | Description |
|-------------|--|
| -d | Specifies the full paths of the backup directories of the Web Server Connector (for Interstage HTTP Server 2.2) resources. If a specified directory does not exist, the command will fail to run, and the resources will not be restored or imported. |
| -h | If there is a need to modify IP addresses of the IJServer cluster when they are imported, by specifying the full path of file names that describe the IP address before and after modification, you can modify IP addresses of the IJServer cluster automatically during the import process. |

IP address specification format

```
(Old IP address) > (New IP address) [(IJServer cluster name)]  
(Old IP address) > (New IP address) [(IJServer cluster name)]  
:
```

- Lines that start with # are treated as comment lines.
- Spaces at the start and end of the line are ignored.
- Insert a line feed delimiter at the end of the line for multiple configurations

Example

When converting IP addresses as follows

- Old: IP address "192.0.2.1", new: IP address "192.0.2.3"
- Old: IP address "192.0.2.2", new: IP address "192.0.2.4", conversion target IJServer cluster: "IJServer01"

```
192.0.2.1 > 192.0.2.3  
192.0.2.2 > 192.0.2.4 IJServer01
```

Return value

- 0: Ended normally
- 1: Ended abnormally

Notes

- This command can only be executed by the system administrator.
- Execute this command when Interstage is in a stopped state.
- When running this command, follow the procedure in [Chapter 8 Maintenance\(Resource Backup / migration of Resources to Another Server\)](#)".
- When restoring from an environment operating using Interstage HTTP Server 2.2, restore the Interstage HTTP Server 2.2 resources before using this command.
- When running this command, simultaneously back up and import the backup target service resources displayed by the isprintbackupsrsc command.
- Execute this command in an environment where Interstage Application Server has been installed in the same directory as when wscbackup was executed.
- If changing the IP address by specifying the -h option:
 - If the same IP address has been specified over several lines for the old IP address, the IP address conversion will fail.

- If an IP address not being used by the IJServer cluster is specified for the old IP address, the IP address conversion will not be performed because the IP address targeted for conversion will not be found.
- When the conversion is performed normally, the updated information message WSC10141 is output.
- Path names containing blank spaces cannot be used in the file name (full path) that is specified in the -h option.

Example

Windows32/64

Restores Web Server Connector (for Interstage HTTP Server 2.2) resources from the "X:\Backup" directory.

```
C:\Interstage\F3FMwsc\bin\wscrestore -d X:\Backup
```

Solaris32/64 **Linux32/64**

Restores Web Server Connector (for Interstage HTTP Server 2.2) resources from the "/backup" directory.

```
/opt/FJSVwsc/bin/wscrestore -d /backup
```

Chapter 10 Java EE 6 Messages

This chapter explains the Java EE 6 related messages.



Messages that are not explained in this chapter

If a message not explained in this chapter was output, refer to "Chapter 13 Java EE Messages" in the Java EE Operator's Guide. If the message is not explained in the Java EE Operator's Guide, identify the cause from the message body to resolve the problem. If the problem is still not resolved, contact Fujitsu technical support.

Note that, when the messages shown below are output, action must be taken according to the explanation for the message with "IJMQ_" as the message number prefix. For details, refer to "Messages that Contain "IJMQ" in the Message ID" in the Java EE Operator's Guide.

- Messages that contain "A" in the message number
- Messages that contain "B" in the message number
- Messages that contain "C" in the message number
- Messages that contain "E" in the message number
- Messages that contain "I" in the message number
- Messages that contain "S" in the message number
- Messages that contain "W" in the message number

Alternative meanings of terminology and references

The following terminology and references, contained in "Chapter 13 Java EE Messages" of the Java EE Operator's Guide, can also have an alternative meaning. Details are as follows:

| Java EE Operator's Guide terminology/reference | Alternative meaning |
|---|--|
| "Chapter 10 Java EE Operation Commands" in the Java EE Operator's Guide | "Chapter 9 Java EE 6 Operation Commands" in the Java EE Operator's Guide (Java EE 6 Edition) |
| Java EE Operation Commands | Java EE 6 Operation Commands |
| IJServer | IJServer cluster |

This section explains the message output format and the tasks which are required before you contact Fujitsu technical support.

Message Output Format

The message format is displayed below:

- Server log

```
[#|date/time|error type||internal information|message number: message content|#]
```

- Message broker log

```
[date/time] [message number]: message content
```

- All other cases

```
label: error type: message number: message content suffix
```

Note

- The following message format is used for convenience:

```
error type: message number: message content
```

- The "label" part contains the following: the "ISJE6" or "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 "error type" ERROR may be output as "SEVERE", and INFO may be output as "CONFIG", "FINE", "FINER", or "FINEST".
- The message number may be displayed in the "ISJE6_xxxxx" or "ISJEE_xxxxx" format. However, the "ISJE6_" or "ISJEE_" message number prefix may not always be added. Additionally, the message number may not always be displayed.
- For the suffix, "(ISJE6)" is output. However, the suffix may not always be displayed.
- A message might not have a space between the number and the content, as displayed below:

```
[#|date/time|error type| |internal information|message number:message content|#]
```

```
[date/time] [message number]:message content
```

```
label: error type: message number:message content suffix
```

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", collect the necessary data using iscollectinfo, and then contact a systems engineer (for details, refer to the "Maintenance Commands" chapter of the Reference Manual (Command Edition)).

Windows32/64

```
C:\Interstage\bin
```

Solaris32/64 Linux32/64

```
/opt/FJSVisas/bin
```

Point

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]
```

Solaris32/64 Linux32/64

For details on FJQSS, refer to the manual stored in the "FJQSS" directory of the Manual package.

10.1 Messages that Contain "A" in the Message ID

10.1.1 A3100 to A3199

[A3117]: The byte 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 broker property value in broker property {1}, and then reexecute the command.
For details on the command, refer to ["9.6 imqcmd"](#).

[A3161]: Failed to read password in passfile: {0}

Variable Information

{0}: Error detail

Explanation

The password file is incorrect.

System Action

Processing is interrupted.

User Action

Take the following actions, and then reexecute the imqcmd command:

- Check if the password file specified in -passfile exists.
- Review the method used to define the password file specified in -passfile.

For details on the command and the method used to define the password file, refer to ["9.6 imqcmd"](#).

10.1.2 When there is no Message Number

If a message not explained in this section was output, action must be taken according to the explanation for the message with "IJMQ_" as the message number prefix. For details, refer to "Messages that Contain "IJMQ" in the Message ID" in the Java EE Operator's Guide.

If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.2 Messages that Contain "ACC" in the Message ID

10.2.1 ACC000 to ACC099

ACC001: Using the only client {1} with main class {2} in {0} even though it does not match the specified main class name {3} or client name {4}

Variable Information

{0}: Client stub JAR file name
{1}: Java EE application client name
{2}: Main class name
{3}: Internal information
{4}: Java EE application client name specified in the appclient command -name option

Explanation

The Java EE application client name specified in the appclient command -name option is not contained in the Java EE application client.

System Action

Processing is continued using the Java EE application client name in {1}.

User Action

Check if the Java EE application client name specified in the appclient command -name option is valid.

ACC002: The application contains multiple app clients; please choose one using -mainclass {0} or -name {1}

Variable Information

{0}: Main class name

{1}: Java EE application client name

Explanation

The application contains multiple Java EE application clients; however the Java EE application client that will be used has not been specified.

System Action

Processing is interrupted.

User Action

Using the appclient command -name option, specify the name of the Java EE application client that will be executed.

ACC003: No app client in the app client group {0} matches the main class name "{1}" or the app client name "{2}"; Please choose one using -mainclass {3} or -name {4}

Variable Information

{0}: Client stub JAR file name

{1}: Internal information

{2}: Java EE application client name specified in the appclient command -name option

{3}: Internal information

{4}: Java EE application client name

Explanation

The Java EE application client name specified in the appclient command -name option is not contained in the Java EE application client.

System Action

Processing is interrupted.

User Action

Using the appclient command -name option, specify the name of the Java EE application client that will be executed.

ACC008: The manifest in the app client facade {0} does not contain the expected entry for {1} or it is invalid; the app client container cannot process it.

Variable Information

{0}: Client stub JAR file path

{1}: Name of the manifest file definition

Explanation

A definition ({1}) required by the manifest file does not exist, or is invalid.

System Action

Processing is interrupted.

User Action

Specify an appropriate value for the manifest file definition ({1}) of the Java EE application client that will be deployed.

10.2.2 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.3 Messages that Contain "ACDEPL" in the Message ID

10.3.1 ACDEPL100 to ACDEPL199

INFO: ACDEPL103: Java Web Start services started for the app client {0} (contextRoot: {1})

Variable Information

{0}: Application name

{1}: Application path

Explanation

The Java Web Start services have been started.

System Action

Processing is continued.

User Action

Not required.

INFO: ACDEPL104: Java Web Start services stopped for the app client {0}

Variable Information

{0}: Application name

Explanation

The Java Web Start services have been stopped.

System Action

Processing is continued.

User Action

Not required.

WARNING: ACDEPL112: The following extensions or libraries are referenced from the manifest of {0} but were not found where indicated: {1}; ignoring and continuing

Variable Information

{0}: Package file name

{1}: Package file name

Explanation

The libraries that are referenced from the manifest file in {0} are not in {1}.

System Action

Processing is continued.

User Action

Check if the manifest file content is correct.

10.3.2 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.4 Messages that Contain "ADM" in the Message ID

10.4.1 ADM1000 to ADM1099

INFO: ADM1079: Initialization of AMX MBeans started

Explanation

The initialization of the AMX MBean started, and then completed. This is an information message, which indicates that the container was started successfully.

10.4.2 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.5 Messages that Contain "B" in the Message ID

10.5.1 B1000 to B1099

[B1047]: Shutting down broker...[{0}]

Variable Information

{0}: Internal information

Explanation

The message broker is being stopped.

10.5.2 B1100 to B1199

[B1132]: Auto-creating destination {0}

Variable Information

{0}: Physical storage destination name [Physical storage destination type]

Explanation

The physical storage destination {0} was generated.

[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

Refer to the message output immediately before this one, and then take the required action.

10.5.3 B1200 to B1299

[B1270]: Processing messages from transaction log file...

Explanation

The transaction information was read from the data store.

[B1277]: Reconstruct message {0}

Variable Information

{0}: Message ID

Explanation

The message ({0}) will be restored when the message broker starts up.

[B1278]: Update state of interest {0} for message {1}

Variable Information

{0}: Internal information
{1}: Message ID

Explanation

The message information retained by the message broker will be updated.

[B1279]: Disregard state of interest {0} for already purged message {1}

Variable Information

{0}: Internal information
{1}: Message ID

Explanation

The message information retained by the message broker will be purged.

10.5.4 B1300 to B1399

[B1387]: Purged {0} messages from destination {1}{2}]

Variable Information

- {0}: Number of purged messages
- {1}: Physical storage destination name
- {2}: Physical storage destination type

Explanation

Messages were purged from the physical storage destination ({1}).

[B1388]: {0} messages not purged from destination {1} because they have been delivered to client at time of the purging

Variable Information

- {0}: Number of messages
- {1}: Physical storage destination name [Physical storage destination type]

Explanation

Number of messages {0} output to Variable Information includes messages that have already been delivered, therefore these messages were not purged from the physical storage destination.

System Action

Processing is continued.

[B1389]: {0} messages not expired from destination {1} because they have been delivered to client at time of the last expiration reaping

Variable Information

- {0}: Number of messages
- {1}: Physical storage destination name [Physical storage destination type]

Explanation

Number of messages {0} includes messages that have already been delivered, therefore these messages are not the expired messages.

System Action

Processing is continued.

[B1390]: Loading of transactions has been successfully completed

Explanation

The loading of transactions is complete.

[B1391]: Removing message {0} from destination {1}{2} on replaying message removal

Variable Information

{0}: Message ID
{1}: Physical storage destination name
{2}: Physical storage destination type

Explanation

Unnecessary message information will be purged from the data store when the message broker starts up.

System Action

Processing is continued.

[B1392]: Opening transaction log with file mode {0}, maximum size {1} bytes

Variable Information

{0}: Internal information1
{1}: Internal information2

Explanation

The data store transaction information was read when the message broker started up.

10.5.5 B2000 to B2099

[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.

10.5.6 B2100 to B2199

[B2106]: Creation of consumer {0} from connection {1} on the auto-created destination {2} failed

Variable Information

{0}: "[Client ID:Subscription DN]" or Subscription DN (**Note 1**)
{1}: Internal information
{2}: "Physical storage destination type:Physical storage destination name" or Physical storage destination name

Note 1) If there is no subscription DN, this will not be output.

Explanation

Failed to create the consumer to connect to the automatically generated physical storage destination.

System Action

Processing is continued.

User Action

- When Variable Information ({0}) is output in the format "[Client ID:Subscription DN]"
 - If the client ID is null, specify a client ID.
 - In all other cases, refer to the message output immediately after this message and then take the required action.
- When the subscription DN is output to Variable Information ({0})
 - If the subscription DN is null, specify a subscription DN.
 - In all other cases, refer to the message output immediately after this message and then take the required action.

10.5.7 B2200 to B2299

[B2254]: Produced message {0} has been removed before producer transaction commit

Variable Information

{0}: Message ID

Explanation

The sent message was removed from the physical storage destination before being committed.

System Action

Processing is continued.

10.5.8 B3000 to B3099

[B3086]: The broker got an exception when trying to acquire the lock file:

Explanation

Failed to delete the message broker material.

System Action

Processing is interrupted.

User Action

Collect the problem investigation data using the iscollectinfo command, and then [contact Fujitsu technical support](#).

10.5.9 B3100 to B3199

[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

The user account operation for the message broker {0} failed.

System Action

Processing is interrupted.

User Action

The message broker instance material does not exist.
Use the `imqbrokerd` command to create the message broker material.
For details on the command, refer to "[9.5 imqbrokerd](#)".

10.5.10 B3200 to B3299

[B3276]: Starting a GlassFish-managed broker directly using `imqbrokerd` is not allowed

Explanation

A message broker instance named "imqbroker" is operated in the EMBEDDED mode.
Alternatively, the EMBEDDED operation message broker material was created.

System Action

Processing is interrupted.

User Action

Take the following actions:

- If this message is output when the message broker starts:

The "imqbroker" instance name of the message broker is duplicated.
Review the message broker instance name, and then restart the message broker.

- If this message is output when the message broker material is created:

Use the following procedure to remove the message broker material, and then create it again:

1. Stop the Interstage Java EE 6 DAS service by using the `asadmin stop-domain` subcommand.
2. Specify the `-remove` option of the `imqbrokerd` command to remove the message broker material.
3. Specify the `-init` option of the `imqbrokerd` command to create the message broker material.

For details on the `stop-domain` subcommand, refer to "[9.1.6.3 stop-domain Subcommand](#)". For details on the `imqbrokerd` command, refer to "[9.5 imqbrokerd](#)".

10.5.11 B4000 to B4099

[B4004]: Failed to persist message {0}:{1}

Variable Information

{0}: Message ID
{1}: Detail information

Explanation

Failed to write the persistent message shown in Variable Information {0}.

System Action

Processing is continued.

User Action

Refer to "[6.15.1 Disk Space Requirements](#)", estimate the required disk space, and then allocate sufficient free space.

[B4051]: Forbidden {0}**Variable Information**

{0}: User name

Explanation

The specified user does not have execution privileges.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Check if the execution privileges for the user {0} and the group that the user belongs to are correct. The user being used and the group that the user belongs to can be checked using the `imqusermgr list` subcommand. For details on the command, refer to "[9.8.4 list Subcommand](#)"
- Review the definition of the access control properties file to ensure that it is correct. For details on the access control properties file, refer to "[5.8.2 Access Control Properties File](#)".

[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}: Subscriber DN (Distinguished Name)

{1}: Client ID

Explanation

Failed to destroy the durable subscription.

System Action

Processing is interrupted.

User Action

- If this message is output when the JMS client application is executed:
Check the following:
 - Check if the subscriber DN ({0}) specified in the JMS client application when the durable subscription was destroyed, is correct.
 - Check if the durable subscription in the JMS client application for which the destruction attempt was made has already been destroyed.
- If this message is output when the `imqcmd destroy dur` subcommand is executed:
Check the following:
 - Check if the subscriber DN ({0}) and client ID ({1}) specified in the `imqcmd destroy dur` subcommand when the durable subscription was destroyed are correct.
 - Check if the durable subscription in the `imqcmd destroy dur` subcommand for which the destruction attempt was made has already been destroyed.

[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 "9.6 imqcmd".

10.5.12 B4100 to B4199

[B4120]: Can not add message {0} to 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 {0} was discarded because the number of messages being held by the physical storage destination {1} exceeds the number of messages that can be held.

System Action

Processing is continued.

User Action

Start the reception application and receive the messages stored at the physical storage destination {1}.

[B4121]: Can not add message {0} to 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 {0} was discarded because the total size of the messages being held by the physical storage destination {1} exceeds the maximum total size of messages that can be held.

System Action

Processing is continued.

User Action

Start the reception application and receive the messages stored at the physical storage destination {1}.

[B4122]: Can not add message {0} to 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 {0} was discarded because its size exceeds the message size that can be held by the physical storage destination {1}.

System Action

Processing is continued.

User Action

Check number of properties and the text size of the message being sent.

[B4176]: Can not create property file {0}

Variable Information

- {0}: Message broker material information

Explanation

Failed to create the message broker material.

System Action

Processing is interrupted.

User Action

Collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

10.5.13 When there is no Message Number

If a message not explained in this section was output, action must be taken according to the explanation for the message with "IJMQ_" as the message number prefix. For details, refer to "Messages that Contain "IJMQ" in the Message ID" in the Java EE Operator's Guide.

If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.6 Messages that Contain "C" in the Message ID

10.6.1 C4000 to C4099

[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 {0}.

System Action

An exception is posted to the application.

User Action

Check the number of properties and the text size of the message being sent.

[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 {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

Start the reception application and receive the messages stored at the physical storage destination {0}.

10.6.2 When there is no Message Number

If a message not explained in this section was output, action must be taken according to the explanation for the message with "IJMQ_" as the message number prefix. For details, refer to "Messages that Contain "IJMQ" in the Message ID" in the Java EE Operator's Guide.

If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.7 Messages that Contain "CLI" in the Message ID

10.7.1 CLI100 to CLI199

CLI136 Port {0} should be a numeric value.

Variable Information

{0}: Specified port number

Explanation

The specified port number is invalid.

System Action

Processing is interrupted.

User Action

Specify an integer between 1 and 65535, and then reexecute the command.

CLI141 No Domains to list.

Explanation

There are no domains.

System Action

Processing is interrupted.

User Action

The product environment has been corrupted, therefore reinstall the product.

CLI173 Values entered for {0} do not match.

Variable Information

{0}: Password type

Explanation

The values entered for the new password at the two prompts do not match, therefore the command execution failed.

System Action

Processing is interrupted.

User Action

Reexecute the command and enter the same password at the two prompts.

10.7.2 CLI300 to CLI399

CLI306 Warning - The server located at {0} is not running.

Variable Information

{0}: Specified port number

Explanation

The specified Interstage Java EE 6 DAS service has not been started.

System Action

Processing is interrupted.

CLI307 Warning - remote server is not running, unable to force it to stop. Try running stop-domain on the remote server.

Variable Information

{0}: Specified port number

Explanation

The port number specified in the stop-domain subcommand, which was executed after the Interstage Java EE 6 DAS service operation management HTTP listener port number was changed, is incorrect.

System Action

Processing is interrupted.

User Action

When executing the stop-domain subcommand after the Interstage Java EE 6 DAS service operation management HTTP listener port number was changed, specify the previous port number before the change.
For details, refer to "[Changing the Operation Management HTTP Listener Port Number](#)".

10.7.3 CLI800 to CLI899

CLI801 Instance is already synchronized

Explanation

The synchronization processing for the server instance is complete.

System Action

Processing is continued.

10.7.4 CLI1300 to CLI1399

CLI1306 Warning - server instance is not running.

Explanation

The specified server instance has not been started.

System Action

Processing is interrupted.

10.7.5 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.8 Messages that Contain "CORE" in the Message ID

10.8.1 CORE10000 to CORE10199

INFO: CORE10003: Updated log levels for loggers.

Explanation

The log levels were updated.

System Action

Processing is continued.

User Action

Not required.

INFO: CORE10101: Done with starting {0} container.

Variable Information

{0}: Container name

Explanation

The container was started.

SEVERE: CORE10103: Unable to start container {0}

Variable Information

{0}: Internal information

Explanation

Failed to start the container.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information and any other messages output at the same time to remove the cause of the error.

10.8.2 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.9 Messages that Contain "DPL" in the Message ID

10.9.1 DPL5000 to DPL5099

WARNING: DPL5032: An authentication method was not defined in the web.xml descriptor. Using default BASIC for login configuration.

Explanation

BASIC authentication is used, because there is no <auth-method> tag in web.xml.

System Action

Processing is continued.

User Action

There is no <auth-method> tag under the web.xml <login-config> tag. Check web.xml.

10.9.2 DPL8000 to DPL8099

DPL8007: Unsupported deployment descriptors element {0} value {1}

Variable Information

{0}: Element name
{1}: Value

Explanation

The value specified in the deployment descriptor is invalid.

System Action

Processing is interrupted.

User Action

Refer to Variable Information and check if the deployment descriptor content is correct, and then reexecute processing.

WARNING: DPL8017: Ejb-ref type mismatch for ejb reference {0}. Reference declares type {1} but target ejb {2} has {3} interface of type {4}.

Variable Information

{0}: EJB reference name
{1}: EJB interface name
{2}: EJB name
{3}: EJB interface type
{4}: EJB interface name

Explanation

Failed to match the EJB reference names.

System Action

Processing is continued.

User Action

Take action using one of the following methods:

- Check if the ejb-ref/ejb-local-ref/@EJB settings match.
- Check if the deployment descriptor file definitions are correct.

WARNING: DPL8019: The run-as principal {0} was assigned by the deployment system based on the specified role. Please consider defining an explicit run-as principal in the sun-specific deployment descriptor.

Variable Information

{0}: Principal name

Explanation

When there are multiple examples of principal name defined in the deployment descriptor, the system will select one of these randomly.

System Action

Processing is continued.

User Action

To define an explicit principal name, specify it in the Interstage deployment descriptor <principal> tag, and then redeploy the application.

WARNING: DPL8020: The role-name is empty. The may not be what the developer had in mind. Please check this.

Explanation

The <role-name> tag under the <run-as> tag is empty.

System Action

Processing is continued.

User Action

Check the <role-name> tag under the web.xml <run-as> tag.

WARNING: DPL8023: URL Pattern contains CR(#xD) or LF(#xA): [{0}]. Leading and trailing whitespace will be ignored.

Variable Information

{0}: Value specified in the <url-pattern> tag

Explanation

The value specified in the <url-pattern> tag contains line feed code.

System Action

Processing is continued.

User Action

Correct the error in the web.xml <url-pattern> tag.

WARNING: DPL8027: Ignore {0} in archive {1}, as GlassFish counterpart runtime xml {2} is present in the same archive.

Variable Information

{0}: deployment descriptor file name

{1}: Application path

{2}: deployment descriptor file name

Explanation

If a duplicate deployment descriptor file is found, the deployment descriptor file ({0}) will be ignored.

System Action

Processing is continued.

User Action

Refer to [3.2 deployment descriptor](#) "Note", delete the deployment descriptor file from the application, and then redeploy the deployment descriptor file.

WARNING: DPL8031: Ignoring {0} because the containing archive {1} recorded it as a pre-existing stale file

Variable Information

{0}: File name

{1}: Application path

Explanation

The preexisting file will be ignored.

System Action

Processing is continued.

User Action

The file from the previous undeployment still remains. Refer to "[1.2.4 Deployment Functionality Restrictions](#)".

The file will be ignored, therefore there is no effect on the deployed application.

10.9.3 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.10 Messages that Contain "DTX" in the Message ID

10.10.1 DTX5000 to DTX5099

WARNING: DTX5014: Caught exception in beforeCompletion() callback:

Explanation

An unexpected exception occurred when the transaction was committed.

System Action

Processing is interrupted.

User Action

Refer to the server log, and remove the cause of the error.

10.10.2 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.11 Messages that Contain "E" in the Message ID

If a message not explained in this section was output, action must be taken according to the explanation for the message with "IJMQ_" as the message number prefix. For details, refer to "Messages that Contain "IJMQ" in the Message ID" in the Java EE Operator's Guide.

If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.12 Messages that Contain "EJB" in the Message ID

10.12.1 EJB5000 to EJB5099

ERROR: EJB5017: Exception while running pre-invoke : ejbName = [{0}]**Variable Information**

{0}: EJB application name

Explanation

An exception occurred during the preprocessing of the method in the EJB application.

System Action

An exception is returned to the caller.

User Action

Refer to the error information output immediately afterwards, and then take the required action.

10.12.2 EJB5100 to EJB5199

WARNING:EJB5108:Unable to initialize EJB Timer Service. The possible cause is the timer resource is not configured correctly, the database has not been started, or the timer database table has not been created.**Explanation**

Failed to initialize the EJB Timer Service.

System Action

The EJB Timer Service was disabled, however EJB container processing is continued.

User Action

If the EJB Timer Service is not used, it is OK to ignore this warning.

Possible causes are as follows:

- Check if the database used in the EJB Timer Service is running.
- Check if the JDBC resource connection pool definition used in the EJB Timer Service is valid. In particular, check the specified JDBC driver connection property (for example, URL, user name, password).
- Check if the JDBC resource used in the EJB Timer Service is defined in the Interstage Java EE 6 DAS service.

Remove the cause of the above warning, and then restart the Interstage Java EE 6 DAS service.

INFO: EJB5109:EJB Timer Service started successfully for data source [{0}]**Variable Information**

{0}: JNDI name of the JDBC resource used by the EJB timer service

Explanation

The EJB timer service initialization was completed normally.

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

An exception is issued and processing is interrupted.

User Action

Check if the correct method is defined in the interface or Bean class and correct the class, and then execute deployment again.

WARNING: EJB5121:EJB Timer Service shutdown info [__timer_service_shutdown__.dat] not found or is corrupted. Shutdown time unknown.

Explanation

The shutdown time of the EJB Timer Service is unknown.

System Action

Processing is continued.

User Action

Ignore this message.

WARNING: EJB5184:A system exception occurred during an invocation on EJB {0}

Variable Information

{0}: Detail information about EJB

Explanation

An exception has occurred during EJB invocation.

System Action

Processing is interrupted.

User Action

Follow the action advised in the exception information and any other messages output at the same time to remove the cause of the error.

10.12.3 EJB6000 to EJB6099

EJB6007:Temporary file could not be created: {0}

Variable Information

{0}: Error information

Explanation

Failed to create the temporary file.

System Action

An exception is returned to the caller.

User Action

Check Error information {0} to identify the cause of the error. If the cause of the error cannot be identified, collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

10.12.4 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.13 Messages that Contain "GRIZZLY" in the Message ID

10.13.1 GRIZZLY0000 to GRIZZLY0099

WARNING: GRIZZLY0006: Exception accepting channel

Explanation

An exception occurred during request acceptance processing.

System Action

The processing to accept requests is repeated.

User Action

If no other messages are output after this message, it indicates that request acceptance has been successful as a result of reexecuting the processing to accept requests and no further action is required.

If other messages are output after this message, it indicates that request acceptance was not successful. Follow the action advised in the exception information and any other messages to remove the cause of the error.

WARNING: GRIZZLY0007: SSL Support could not be configured!

Explanation

Failed to configure the SSL environment.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information and any other messages to remove the cause of the error. Additionally, check if the alias specified for the network configuration definition item "certificate nickname" exists in the keystore. If it does not exist, reconfigure the alias registered in the keystore.

WARNING: GRIZZLY0010: Unrecognized cipher [{0}].

Variable Information

{0}: Encryption method

Explanation

The encryption method {0} is not recognized.

System Action

Processing is continued.

User Action

Refer to "[Encryption method group](#)" in "Network Configuration Definition Items", and check if the specified encryption method is valid.

WARNING: GRIZZLY0030: {0} exception.

Variable Information

{0}: Method name

Explanation

An exception has been thrown during socket option configuration.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information and any other messages to remove the cause of the error. If the problem is still not resolved, [contact Fujitsu technical support](#).

SEVERE: GRIZZLY0036: Error finishing request.

Explanation

An exception has been thrown during request recovery processing.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information and any other messages to remove the cause of the error. If the problem is still not resolved, [contact Fujitsu technical support](#).

SEVERE: GRIZZLY0037: Error finishing response.

Explanation

An exception has been thrown during response recovery processing.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information and any other messages to remove the cause of the error. If the problem is still not resolved, [contact Fujitsu technical support](#).

SEVERE: GRIZZLY0038: HTTP Processing error.

Explanation

An exception has been thrown during request processing.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information and any other messages to remove the cause of the error. If the problem is still not resolved, [contact Fujitsu technical support](#).

SEVERE: GRIZZLY0039: Request URI is too large.**Explanation**

The request URI is too long.

System Action

Request processing is interrupted.

User Action

Review the request URI or the network configuration definition item "[Receive buffer size](#)". If it is necessary to send large numbers of queries, consider using the HTTP POST method.

SEVERE: GRIZZLY0040: Request header is too large.**Explanation**

The request header is too long.

System Action

Request processing is interrupted.

User Action

Review the header added to the request and the network configuration definition item "[Receive buffer size](#)".

SEVERE: GRIZZLY0041: Unblocking keep-alive exception.**Explanation**

An exception has been thrown during request analysis processing.

System Action

Request processing is interrupted.

User Action

Follow the action advised in the exception information and any other messages to remove the cause of the error. If the problem is not resolved, [contact Fujitsu technical support](#).

SEVERE: GRIZZLY0042: Error creating internal request.**Explanation**

An exception has been thrown during request preparation processing.

System Action

Request processing is interrupted.

User Action

- This message may be output if a request is accepted when definition items in network settings and in the thread pool are changed. You should change definition items when there are no requests.
- Follow the action advised in the exception information and any other messages to remove the cause of the error. If the problem is still not resolved, [contact Fujitsu technical support](#).

SEVERE: GRIZZLY0047: Exception starting the controller.**Explanation**

HTTP listener initialization failed.

System Action

The initialization of the HTTP listener is canceled. The HTTP listener cannot be used.

User Action

Refer to the exception information that was output at the same time, and remove the cause of the error.

Check if an extremely large value was specified in the [network configuration definition item](#) or the [thread pool definition item](#) properties.

If "java.lang.OutOfMemoryError" is output to the exception information, check if a large value was specified for "[Acceptor threads](#)".

SEVERE: GRIZZLY0051: ProcessorTask exception.

Explanation

An unexpected exception occurred during request processing.

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. If the problem is not resolved, [contact Fujitsu technical support](#).

WARNING: GRIZZLY0082: Error sending error response

Explanation

An exception has been thrown during default error page transmission processing.

System Action

Transmission processing for the default error page is interrupted.

User Action

- This message may be output if a request is accepted when definition items in network settings and in the thread pool are changed. You should change definition items when there are no requests.
- This message may be displayed in case of failure to output the default error page, which is returned to the client that sent an invalid request. In such cases, there is no need to take any action.

10.13.2 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.14 Messages that Contain "I" in the Message ID

If a message not explained in this section was output, action must be taken according to the explanation for the message with "IJMQ_" as the message number prefix. For details, refer to "Messages that Contain "IJMQ" in the Message ID" in the Java EE Operator's Guide.

If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.15 Messages that Contain "IJJSON" in the Message ID

10.15.1 IJJSON1000 to IJJSON1099

IJJSON1005: Numeric value ({0}) out of range of Java byte.

Variable Information

{0}: Invalid numeric value

Explanation

An invalid numeric value was detected during deserialization of JSON data.

System Action

Processing is interrupted.

User Action

Review the values in the received JSON numeric data, and ensure that they are within the range -128 to 255.

IJJSON1006: Numeric value ({0}) out of range of Java short

Variable Information

{0}: Invalid numeric value

Explanation

An invalid numeric value was detected during deserialization of JSON data.

System Action

Processing is interrupted.

User Action

Review the values in the received JSON numeric data, and ensure that they are within the range -32768 to 32767.

IJJSON1025: Unexpected close marker {0}: expected {1} (for {2} starting at {3})

Variable Information

{0}: Invalid close marker

{1}: Expected close marker

{2}: Internal information

{3}: Internal information

Explanation

An unexpected and invalid close marker was detected during deserialization of JSON data.

System Action

Processing is interrupted.

User Action

Review the received JSON data and ensure that the format of that data, including JSON object and JSON array close markers, and that the content of the JSON data, including escape characters, are valid.

IJJSON1026: Current token ({0}) not numeric, can not use numeric value accessors

Variable Information

{0}: Internal information

Explanation

Non-numeric values were detected in the received JSON numeric data during deserialization of JSON numeric values.

System Action

Processing is interrupted.

User Action

Ensure that the values in the received JSON numeric data only contain numbers.

IJJSON1029: Numeric value ({0}) out of range of int

Variable Information

{0}: Invalid numeric value

Explanation

An invalid numeric value was detected during deserialization of JSON data.

System Action

Processing is interrupted.

User Action

Review the values in the received JSON numeric data, and ensure that they are within the range -2147483648 to 2147483647.

IJJSON1030: Unexpected character ({0}) in numeric value: {1}

Variable Information

{0}: Invalid character

{1}: Detail information

Explanation

An invalid character was detected during deserialization of JSON numeric values.

System Action

Processing is interrupted.

User Action

Refer to Detail information {1}, and ensure that the values in the received JSON numeric data only contain valid characters.

IJJSON1031: Invalid numeric value: {0}

Variable Information

{0}: Detail information

Explanation

An invalid numeric value was detected during deserialization of JSON data.

System Action

Processing is interrupted.

User Action

Refer to Detail information {0}, and ensure that the values in the received JSON numeric data are valid according to JSON conventions.

IJJSON1033: Numeric value ({0}) out of range of long (-9223372036854775808 - 9223372036854775807)

Variable Information

{0}: Invalid numeric value

Explanation

An invalid numeric value was detected during deserialization of JSON data.

System Action

Processing is interrupted.

User Action

Review the values in the received JSON numeric data, and ensure that they are within the range -9223372036854775808 to 9223372036854775807.

IJJSON1043: Unexpected character {0}: {1}

Variable Information

{0}: Invalid character

{1}: Detail information

Explanation

An invalid character was detected during deserialization of JSON data.

System Action

Processing is interrupted.

User Action

Refer to Detail information {1}, and ensure that the format of the received JSON data, including JSON objects and JSON array, and the content of the JSON data, are valid.

IJJSON1044: Unexpected end-of-input{0}

Variable Information

{0}: Detail information

Explanation

Deserialization of JSON data failed.

System Action

Processing is interrupted.

User Action

Refer to Detail information {0}, and ensure that the format of the received JSON data, including JSON objects and JSON array, are valid.

IJJSON1046: Illegal unquoted character ({0}): has to be escaped using backslash to be included in {1}

Variable Information

{0}: Invalid character

{1}: Internal information

Explanation

An invalid character was detected during deserialization of JSON data.

System Action

Processing is interrupted.

User Action

You must escape the invalid character {0}. Ensure that the content of the JSON data is valid.

IJJSON1047: Unrecognized character escape {0}

Variable Information

{0}: Invalid character

Explanation

An invalid character was detected during deserialization of JSON data

System Action

Processing is interrupted.

User Action

You cannot escape the invalid character {0}. Ensure that the content of the JSON data is valid.

IJJSON1057: Unrecognized token '{0}': was expecting {1}

Variable Information

{0}: Invalid value

{1}: Detail information

Explanation

An invalid JSON data value was detected during deserialization of JSON data.

System Action

Processing is interrupted.

User Action

Refer to Detail information {1} and ensure that the JSON data values included in the received JSON data are valid.

IJJSON1062: Can not write a field name, expecting a value

Explanation

Serialization of JSON data failed.

System Action

Processing is interrupted.

User Action

Collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

IJJSON1067: Can not {0}, expecting field name

Variable Information

{0}: Internal information

Explanation

Serialization of JSON data failed.

System Action

Processing is interrupted.

User Action

Collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

IJJSON1073: Current token ({0}) not VALUE_STRING or VALUE_EMBEDDED_OBJECT, can not access as binary

Variable Information

{0}: Internal information

Explanation

Deserialization of JSON data failed because JSON data included in a request was in an unexpected format.

System Action

Processing is interrupted.

User Action

Ensure that the format of the received JSON data, including JSON objects and JSON array, and the content of the JSON data, are valid.

IJJSON1074: Failed to decode VALUE_STRING as base64 ({0}): {1}

Variable Information

{0}: Internal information

{1}: Detail information

Explanation

Deserialization failed because there was an unexpected JSON data value included in a request.

System Action

Processing is interrupted.

User Action

Refer to Detail information {1}, and ensure that the value of the received JSON data is a value (BASE64 decodable value) that is expected by the JAX-RS application.

IJJSON1078: Unrecognized token {0}: was expecting {1}

Variable Information

{0}: Invalid JSON data

{1}: Expected JSON data

Explanation

An invalid JSON data value was detected during deserialization of JSON data.

System Action

Processing is interrupted.

User Action

Ensure that the content of data values included in the received JSON data is valid.

IJJSON1081: Invalid UTF-8 start byte 0x{0}

Variable Information

{0}: Invalid character code

Explanation

A character code that is invalid for UTF-8 was detected during deserialization of JSON data.

System Action

Processing is interrupted.

User Action

Check if the received JSON data is valid.

10.15.2 IJJSON3000 to IJJSON3099

IJJSON3004: Internal error (was {0}) {1}

Variable Information

{0}: Class name

{1}: Detail information

Explanation

An unexpected exception has occurred.

System Action

Processing is interrupted.

User Action

Refer to Detail information {1}, and take the required action.

IJJSON3014: No content to map to Object due to end of input

Explanation

Unexpected JSON data was detected.

System Action

Processing is interrupted.

User Action

Check if the received JSON data contains a syntax error.

IJJSON3090: Can not deserialize instance of {0} out of {1} token

Variable Information

{0}: Class name

{1}: Internal information

Explanation

Deserialization of JSON data failed.

System Action

Processing is interrupted.

User Action

Check if there is a problem with either of the following:

- Values in the JSON data
- Definitions of Variable Information classes

IJJSON3091: Can not construct instance of {0}, problem: {1}

Variable Information

- {0}: Class name
- {1}: Detail information

Explanation

Deserialization of JSON data failed.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- When simultaneously output exception messages are java.lang.ClassNotFoundException, review the class name and check if there is an error.
- Refer to Detail information {1}, and take the required action.

IJJSON3092: Can not construct instance of {0}, problem: {1}

Variable Information

- {0}: Class name
- {1}: Detail information

Explanation

Deserialization of JSON data failed.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- When simultaneously output exception messages are java.lang.ClassNotFoundException, review the class name and check if there is an error.
- Refer to Detail information {1}, and take the required action.

IJJSON3093: Can not construct instance of {0} from String value {1}: {2}

Variable Information

- {0}: Class name
- {1}: JSON data
- {2}: Detail information

Explanation

Deserialization of JSON data failed.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Ensure that there is no error in the combination of Java classes used in the application resource method and the received JSON data values.
- Refer to Detail information {2}, and take the required action.

IJJSON3094: Can not construct instance of {0} from number value ({1}): {2}

Variable Information

{0}: enum enumerator name

{1}: enum constant

{2}: Detail information

Explanation

Deserialization of JSON data failed.

System Action

Processing is interrupted.

User Action

Refer to Detail information {2} and ensure that there is no error in the enum constant or enumerator name within the JAX-RS application.

IJJSON3096: Unexpected token ({0}), expected {1}: {2}

Variable Information

{0}: Internal information

{1}: Internal information

{2}: Detail information

Explanation

Unexpected JSON data was detected.

System Action

Processing is interrupted.

User Action

Refer to Detail information {2}, and ensure that there is no error in the received JSON data.

10.15.3 IJJSON3100 to IJJSON3199

IJJSON3135: Can not instantiate value of type {0} from JSON long integral number; no single-long-arg constructor/factory method {1}

Variable Information

{0}: Class name

{1}: Detail information

Explanation

An invalid numeric value was detected during deserialization of JSON data.

System Action

Processing is interrupted.

User Action

Refer to Detail information {1}, and ensure that there is no error in the received JSON data.

IJJSON3136: Can not instantiate value of type {0} from JSON floating-point number; no one-double/Double-arg constructor/factory method {1}

Variable Information

{0}: Class name

{1}: Detail information

Explanation

An invalid numeric value was detected during deserialization of JSON data.

System Action

Processing is interrupted.

User Action

Refer to Detail information {1}, and ensure that there is no error in the received JSON data.

IJJSON3138: Can not instantiate value of type {0} from JSON String; no single-String constructor/factory method

Variable Information

{0}: Detail information

Explanation

Deserialization of JSON data failed because JSON data included in a request was in an unexpected format.

System Action

Processing is interrupted.

User Action

Ensure that the format of the received JSON data is a format expected by the JAX-RS application.

- Ensure that there is no error in the received JSON data.
- Ensure that there is no error in the type displayed in Detail information {0}.

IJJSON3139: Instantiation of {0} value failed: {1}

Variable Information

{0}: Class name

{1}: Detail information

Explanation

Deserialization of JSON data failed.

System Action

Processing is interrupted.

User Action

Refer to Detail information {1}, and ensure that there is no error in the received JSON data.

IJJSON3142: Unrecognized field "{0}" (Class {1}), not marked as ignorable

Variable Information

{0}: Field name

{1}: Class name

Explanation

Fields that can be serialized within a class cannot be found.

System Action

Processing is interrupted.

User Action

Review the JAX-RS application, and check if fields that can be serialized exist within a class.

IJJSON3143: Failed to parse JSON String as XML: {0}

Variable Information

{0}: Detail information

Explanation

An invalid XML statement was detected during deserialization of JSON data.

System Action

Processing is interrupted.

User Action

Refer to Detail information {0}, and ensure that there is no error in the received JSON data.

10.15.4 IJJSON3200 to IJJSON3299

IJJSON3218: No serializer found for class {0} and no properties discovered to create BeanSerializer (to avoid exception, disable SerializationConfig.Feature.FAIL_ON_EMPTY_BEANS)

Variable Information

{0}: Class name

Explanation

Properties that can be serialized within a class cannot be found.

System Action

Processing is interrupted.

User Action

Review the JAX-RS application, and check if properties that can be serialized exist within a class.

IJJSON3220: Infinite recursion (StackOverflowError) {0}

Variable Information

{0}: Detail information

Explanation

Serialization failed because the class is referenced recursively.

System Action

Processing is interrupted.

User Action

Review the class declaration in Detail information {0}.

IJJSON3297: Unexpected JSON array format ({0})

Variable Information

{0}: Internal information

Explanation

Deserialization failed because a JSON array included in a request was in an unexpected format.

System Action

Processing is interrupted.

User Action

Check if the format of a JSON array included in the received JSON data was in a format expected by the JAX-RS application.

10.15.5 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.16 Messages that Contain "IJServer" in the Message ID

10.16.1 IJServer12000 to IJServer12099

(error) IJServer12059: Unable to run Web Server Connector. ThreadsPerChild=<ThreadsPerChild> pid=<pid> tid=<tid>

Variable Information

<ThreadsPerChild>=ThreadsPerChild value

<pid>= Web server process ID

<tid>= Web server thread ID

Explanation

The web server connector cannot be started.

Cause

In the web server environment definition files, a value other than 1 has been set in the ThreadsPerChild directive.

User Action

When using the web server connector, the web server cannot be operated on multiple threads.

In the web server environment definition files, set the ThreadsPerChild directive to 1.

(error) IJServer12060: Internal error. detail={0} pid=<pid> tid=<tid>

Variable Information

{0}: Detailed message
<pid>= Web server process ID
<tid>= Web server thread ID

Explanation

An internal error occurred.

User Action

Collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

(error) IJServer12061: Unable to get Web Servername. file="<filename>" errno=<errno> pid=<pid> tid=<tid>

Variable Information

<filename>= Web server environment definition file name
<errno>= Error number
<pid>= Web server process ID
<tid>= Web server thread ID

Explanation

The web server name cannot be obtained from the web server list file.

Cause

Possible causes are as follows:

1. If <errno> is -2, there is no web server list file.
2. If <errno> is 0, there is no web server name definition corresponding to <filename> in the web server list file.
3. If <errno> is not one of the above, then there may be a problem in the web server list file, or an error has occurred in the program.

User Action

1. Check if the web server list file exists.
2. Check the web server list file to see if there is an error in the settings of the relevant web server.
3. Check to see if there is an error in the web server list file settings.

If there is no error in the settings, collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

10.16.2 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.17 Messages that Contain "IJ6INIT" in the Message ID

10.17.1 IJ6INIT0000 to IJ6INIT0099

INFO: IJ6INIT0001: ij6init command is started.

Explanation

Initialization of the Java EE 6 environment has started.

INFO: IJ6INIT0002: ij6init command executed successfully.

Explanation

Initialization of the Java EE 6 environment has finished.

ERROR: IJ6INIT0101: ij6init command failed.

Explanation

Initialization of the Java EE 6 environment failed.

System Action

Processing is interrupted.

User Action

Refer to the error message that was output at the same time, and take the required action.

ERROR: IJ6INIT0102: Required file is not found. file='{0}'

Variable Information

{0}: File name

Explanation

The file was not found.

System Action

Processing is interrupted.

User Action

Check if the file exists.

If it does not exist, there may be a problem in the environment. Reinstall the environment.

If the problem still exists, collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

ERROR: IJ6INIT0103: Has no permission for executing the command. cmd='{0}'

Variable Information

{0}: Command name

Explanation

The user does not have the privileges required to execute the command.

System Action

Processing is interrupted.

User Action

Check if administrator privileges have been granted to the files in Variable Information {0}. If they have not been granted, reinstall the product.

ERROR: IJ6INIT0104: Failed to get the Java information. details1='{0}'. details2='{1}'

Variable Information

{0}: Internal information

{1}: Internal information

Explanation

Failed to obtain the Java information.

System Action

Processing is interrupted.

User Action

Java SE, required for Java EE 6, may not have been installed. If it has not been installed, install it and then reexecute.

There may be insufficient system memory. Reexecute after stopping unnecessary services.

If the problem still exists, collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

ERROR: IJ6INIT0105: File does not created. file='{0}'

Variable Information

{0}: File name

Explanation

Required files have not been created.

System Action

Processing is interrupted.

User Action

Collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

10.17.2 IJ6INIT1100 to IJ6INIT1199

ERROR: IJ6INIT1101: Error occurred before init the log. details='{0}'

Variable Information

{0}: Detail information

Explanation

An unexpected error occurred.

System Action

Processing is interrupted.

User Action

Refer to messages output to the console, or to the stack trace, and take the required action.

If the problem still exists, manually collect a copy of the stack trace and then [contact Fujitsu technical support](#).

ERROR: IJ6INIT1102: Unexpected error occured before init the log. details='{0}'

Variable Information

{0}: Detail information

Explanation

An unexpected error occurred.

System Action

Processing is interrupted.

User Action

Refer to Detail information {0}, and take the required action.

If the problem still exists, collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

ERROR: IJ6INIT1103: Unexpected error occured. details='{0}'

Variable Information

{0}: Detail information

Explanation

An unexpected error occurred.

System Action

Processing is interrupted.

User Action

Refer to Detail information {0}, and take the required action.

If the problem still exists, collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

ERROR: IJ6INIT1104: Failed to get install directory

Explanation

An unexpected error occurred.

System Action

Processing is interrupted.

User Action

Collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

ERROR: IJ6INIT1105: Unexpected internal error Occured. details='{0}'

Variable Information

{0}: Internal information

Explanation

An unexpected error occurred.

System Action

Processing is interrupted.

User Action

Reinstall the product.

If the problem still exists, collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

ERROR: IJ6INIT1106: Failed to initialize the log file. file='{0}'

Variable Information

{0}: File name

Explanation

Log initialization failed.

System Action

Processing is interrupted.

User Action

Manually collect a copy of messages output to the console, or to the stack trace, and then [contact Fujitsu technical support](#).

ERROR: IJ6INIT1107: Failed to start process.

Explanation

Process startup failed.

System Action

Processing is interrupted.

User Action

If messages have been output before or after, refer to the error message that was output, and take the required action.

If the problem still exists, collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

ERROR: IJ6INIT1108: Failed to execute command. cmd='{0}'. details='{1}'

Variable Information

{0}: Command name

{1}: Detail information

Explanation

Execution of the command failed.

System Action

Processing is interrupted.

User Action

Refer to Detail information {1}, and take the required action.

If the problem still exists, collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

ERROR: IJ6INIT1109: Failed to execute command. cmd='{0}'. code='{1}'

Variable Information

{0}: Command name

{1}: Return value

Explanation

Execution of the command failed.

System Action

Processing is interrupted.

User Action

If messages have been output before or after, refer to the error message that was output, and take the required action.

If the problem still exists, collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

ERROR: IJ6INIT1110: Failed to create domain.

Explanation

Failed to create the Java EE 6 operating environment.

System Action

Processing is interrupted.

User Action

Check the following and after removing the problem, reexecute.

- Is there a problem in the directory specified as the Java EE 6 common directory?
- Is the parent directory of the specified directory in the Java EE 6 common directory?
- Is either an empty or non-existent directory specified as the Java EE 6 common directory?

- Is there permission to write to the Java EE 6 common directory?

Ensure that the directory specified in the Java EE 6 common directory satisfies the above and then reexecute.

ERROR: IJ6INIT1111: Failed to setup PCMI service. details='{0}'**Variable Information**

{0}: Detail information

Explanation

Set up of the PCMI service failed.

System Action

Processing is interrupted.

User Action

Refer to Detail information {0}, and take the required action.

ERROR: IJ6INIT1112: Failed to rollback PCMI service. details='{0}'**Variable Information**

{0}: Detail information

Explanation

The deletion process of the PCMI service failed.

System Action

Processing is interrupted.

User Action

Refer to messages output before and after this message, and take the required action.

ERROR: IJ6INIT1113: Failed to create symbolic link. src='{0}', dest='{1}'. details='{2}'**Variable Information**

{0}: Symbolic link source

{1}: Symbolic link destination

{2}: Detail information

Explanation

Failed to create the symbolic link.

System Action

Processing is interrupted.

User Action

Check the following and after removing the problem, reexecute.

- Does the symbolic link destination directory have write permission?

- Does the symbolic link destination already exist?
- Is there sufficient disk space for the symbolic link to be created?

ERROR: IJ6INIT1114: File already exist. file='{0}'**Variable Information**

{0}: File name

Explanation

The file already exists.

System Action

Processing is interrupted.

User Action

The file already exists at the destination. Delete the file and then reexecute.

ERROR: IJ6INIT1115: Failed to create the directory. file='{0}'**Variable Information**

{0}: Directory name

Explanation

Failed to create the directory.

System Action

Processing is interrupted.

User Action

Check the following and after removing the problem, reexecute.

- Does the directory have write permission?
- Does the directory already exist?
- Is there sufficient disk space for the directory to be created?

ERROR: IJ6INIT1116: Failed to copy the file. src='{0}'. dest='{1}'**Variable Information**

{0}: Source file

{1}: Destination file

Explanation

Failed to copy the file.

System Action

Processing is interrupted.

User Action

Check the following and after removing the problem, reexecute.

- Does the destination directory have write permission?
- Does the file already exist at the destination?
- Is there sufficient disk space at the destination?
- Does the source file exist?

ERROR: IJ6INIT1117: Failed to delete the file. file='{0}'**Variable Information**

{0}: File name

Explanation

Failed to delete the file.

System Action

Processing is interrupted.

User Action

Ensure that the file displayed in Variable Information {0} is not being used in another process.

If the file is being used, stop the program and then reexecute it.

ERROR: IJ6INIT1118: Failed to compare the paths. path1='{0}', path2='{1}'**Variable Information**

{0}: Internal information

{1}: Internal information

Explanation

An internal error occurred.

System Action

Processing is interrupted.

User Action

Collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

ERROR: IJ6INIT1119: Failed to get canonical path. path='{0}'**Variable Information**

{0}: Internal information

Explanation

An internal error occurred.

System Action

Processing is interrupted.

User Action

Collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

ERROR: IJ6INIT1120: Failed to create the property file. file='{0}'

Variable Information

{0}: File name

Explanation

Failed to create the file.

System Action

Processing is interrupted.

User Action

Check the following and after removing the problem, reexecute.

- Does the destination directory have write permission?
- Does the file already exist at the destination?
- Is there sufficient disk space at the destination?

ERROR: IJ6INIT1121: Failed to load the properties file. file='{0}'

Variable Information

{0}: File name

Explanation

Failed to load the properties file.

System Action

Processing is interrupted.

User Action

Check the following and after removing the problem, reexecute.

- Does the file exist?
- Is the file being used by another program?

ERROR: IJ6INIT1122: Can not create the file using the template file. src='{0}'. dest='{1}'

Variable Information

{0}: File name

{1}: File name

Explanation

Failed to create the file.

System Action

Processing is interrupted.

User Action

Check the following and after removing the problem, reexecute.

- Does the destination of {1} have write permission?
- Does the file already exist at the destination of {1} ?
- Is there sufficient disk space at the destination of {1} ?
- Does the file {0} exist?

ERROR: IJ6INIT1123: Failed to store the login information. details='{0}'

Variable Information

{0}: Detail information

Explanation

An internal error occurred.

System Action

Processing is interrupted.

User Action

Refer to Detail information, and take the required action.

ERROR: IJ6INIT1124: Failed to setup Java EE 6 environment. details='{0}'

Variable Information

{0}: Detail information

Explanation

Failed to set up the Java EE 6 operating environment.

System Action

Processing is interrupted.

User Action

Refer to Detail information {0}, and take the required action.

10.17.3 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.18 Messages that Contain "IJ6SETOPID" in the Message ID

10.18.1 IJ6SETOPID000 to IJ6SETOPID099

INFO: IJ6SETOPID001: The service operation user was changed to {0}.

Variable Information

{0}: User name

Explanation

The service operator user was changed to {0}.

INFO: IJ6SETOPID002: ij6setoperatorid executed successfully.

Explanation

The ij6setoperatorid command was successfully executed.

ERROR: IJ6SETOPID003: File {0} not found.

Variable Information

{0}: File name

Explanation

Execution of the command failed because the {0} file does not exist.

System Action

Processing is interrupted.

User Action

Possible causes as to why the file does not exist are as follows:

- It has been deleted
- An error occurred in referencing the shared disk.
- Check if the {0} file exists, and recover it to a state where it can be referenced. If recovery is not possible, collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

WARNING: IJ6SETOPID004: The environment was restored.

Explanation

The environment has been restored.

System Action

Processing is continued.

User Action

If no errors occur after this message, there is no need to take further action.

ERROR: IJ6SETOPID005: The specified option is invalid.

Explanation

Execution of the command failed because there is an error in the option specification method.

System Action

Processing is interrupted.

User Action

Correctly specify the option while referring to the manual, and reexecute the command.

ERROR: IJ6SETOPID006: The username needs to be specified with the -u option.

Explanation

Execution of the command failed because the user name has not been specified.

System Action

Processing is interrupted.

User Action

Specify the correct user name while referring to the manual, and reexecute the command.

ERROR: IJ6SETOPID007: The specified username is invalid.

Explanation

Execution of the command failed because the user name is invalid.

System Action

Processing is interrupted.

User Action

Specify the correct user name while referring to the manual, and reexecute the command.

ERROR: IJ6SETOPID008: The specified user does not exist.

Explanation

Execution of the command failed because a user who does not exist was specified.

System Action

Processing is interrupted.

User Action

Specify an existing user name while referring to the manual, and reexecute the command.

ERROR: IJ6SETOPID009: Primary group of the specified user is not Interstage operation group.

Explanation

Primary group of the specified user is not Interstage operation group.

System Action

Processing is interrupted.

User Action

Specify a user whose primary group is the Interstage operation group, and reexecute the command.

ERROR: IJ6SETOPID010: The PCMI service has not been stopped.

Explanation

The PCMI service has not been stopped.

System Action

Processing is interrupted.

User Action

Reexecute the command after stopping the PCMI service.

ERROR: IJ6SETOPID011: The Message Queue Broker has not been stopped.

Explanation

The message broker has not been stopped.

System Action

Processing is interrupted.

User Action

Reexecute the command after stopping the message broker.

ERROR: IJ6SETOPID012: The command is being executed.

Explanation

Execution of the command failed because the ij6setoperatorid command is being processed.

System Action

Processing is interrupted.

User Action

Wait for a while, and then reexecute the command.

ERROR: IJ6SETOPID013: An error occurred when change file's owner. File name={0}

Variable Information

{0}: File name

Explanation

Execution of the command failed because an error occurred when changing the file owner.

System Action

Processing is interrupted.

User Action

Possible causes as to why the file owner cannot be changed are as follows:

- The file has been deleted
- An error occurred in referencing the shared disk

Check if the {0} file exists, and recover it to state where it can be referenced. If it is not possible to recover the file, collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

ERROR: IJSETOPID014: The status of service was not able to be acquired.**Explanation**

Execution of the command failed because the status of the service could not be obtained.

System Action

Processing is interrupted.

User Action

A problem may have occurred with the Java EE 6 environment. Perform the following actions:

- If a message has been output at the same time, take the action indicated in the message.
- When possible, reinstall the Java EE 6 features and recover the environment.

If the above are not relevant, and the problem is not resolved, collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

10.18.2 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.19 Messages that Contain "IOP" in the Message ID

10.19.1 IOP00110200 to IOP00110299

IOP00110230: {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 has been configured for the following properties:

- `com.sun.corba.ee.transport.ORBTCPCConnectTimeouts`
- `com.sun.corba.ee.transport.ORBTCPTimeouts`

System Action

An exception is posted to the application.

When the IJServer cluster is used, a message is output to the server log.

User Action

Edit the values for the following properties:

- `com.sun.corba.ee.transport.ORBTCPCConnectTimeouts`

- com.sun.corba.ee.transport.ORBTCPTimeouts

IOP00110231: Timeout data must be 3 or 4 positive decimal integers separated by

Explanation

The format of the values specified for the following properties is incorrect:

- com.sun.corba.ee.transport.ORBTCPCConnectTimeouts
- com.sun.corba.ee.transport.ORBTCPTimeouts

System Action

An exception is posted to the application.

When the IJServer cluster is used, a message is output to the server log.

User Action

The method used to specify the following properties is incorrect, so correct it:

- com.sun.corba.ee.transport.ORBTCPCConnectTimeouts
- com.sun.corba.ee.transport.ORBTCPTimeouts

10.19.2 IOP00410200 to IOP00410299

IOP00410211: IOException received when reading from connection {0}

Variable Information

{0}: Detail information

Explanation

An I/O exception occurred in the read processing from the socket.

System Action

An exception is posted to the application.

User Action

The connection may have been broken.

Check the message output at the same time or the message notified to the communication destination, and remove the cause of the exception.

IOP00410230: Exception in a blocking read on connection {0} with a temporary selector

Variable Information

{0}: Connection information

Explanation

An exception has occurred in the receive data processing.

System Action

An exception is posted to the application.

User Action

The connection may have been broken.

Check the message output at the same time or the message notified to the communication destination, and remove the cause of the exception.

IOP00410234: Received {0}, in a blocking read on connection, {1}, because an 'end of stream' was detected

Variable Information

{0}: Exception information
{1}: Connection information

Explanation

The reading of the data has not been complete in the receive data processing.

System Action

An exception is posted to the application.

User Action

The connection may have been broken.

Check the message output at the same time or the message notified to the communication destination, and remove the cause of the exception.

10.19.3 IOP00511200 to IOP00511299

IOP00511201: 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.
When the IJServer cluster is used, a message is output to the server log.

User Action

Check the IIOP listener status.

10.19.4 IOP00710300 to IOP00710399

IOP00710334: Exception occurred in handleRequest for a Request message

Explanation

An exception occurred while sending a request.

System Action

An exception is posted to the application.

User Action

Identify the cause from the exception information output after 'Caused by:' in the stack trace, and then take the required action.

10.19.5 IOP00710800 to IOP00710899

IOP00710812: Can't pop only PICurrent

Explanation

An error occurred in internal processing.

System Action

An exception is posted to the application.

User Action

Take action according to the exception that was output at the same time.

10.19.6 IOP00810200 to IOP00810299

IOP00810213: Could not find class {0} in CDRInputStream.readClass

Variable Information

{0}: Class name

Explanation

The class was not found.

System Action

An exception is posted to the application.

User Action

Check if the class {0} exists.

10.19.7 IOP01210200 to IOP01210299

IOP01210232: Could not find method named {0} in class {1} in reflective Tie

Variable Information

{0}: Method name

{1}: Class name

Explanation

A remote interface method call not implemented by the server application was executed.

System Action

An exception is posted to the application.

User Action

Check if the remote interfaces used in the client application and server application match.

IOP01210250: Could not instantiate stub class {0} for dynamic RMI-IIOP

Variable Information

{0}: Class name

Explanation

Failed to instantiate the stub class.

System Action

An exception is posted to the application.

User Action

Identify the cause from the exception information output after 'Caused by:' in the stack trace, and then take the required action.

10.19.8 IOP01211400 to IOP01211499

IOP01211405: Exception in loadStub

Explanation

Failed to call the stub.

System Action

Processing is interrupted.

User Action

- This message may be output if the remote interface and the class that uses the remote interface are not loaded by the same class loader. Include the remote interface and the class that uses the remote interface in the same module.
- This message is output when Security Manager has been enabled in the application client container. Security Manager is not supported in the application client container. Disable Security Manager.
- If IOP01210250 is output at the same time as this message, an inconsistency may have occurred in the IJServer cluster. Restart the IJServer cluster, and then call the server application again.

10.19.9 IOP01711000 to IOP01711099

IOP01711002: Thread is active in another POAManager: holding on a different POAManager might cause a deadlock

Explanation

In this state, state transition is temporarily unavailable, and activation of the POA Manager fails.

System Action

An exception is posted to the application.

User Action

Call the server application again.

10.19.10 IOP02500000 to IOP02500099

IOP02500002: Failed to create or locate Object Adaptor

Explanation

Failed to generate the object adapter.

System Action

An exception is posted to the application.

User Action

If this message is output when the IJServer cluster is not running, no action is required.

If this message is output at any other time, call the server application again.

10.19.11 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.20 Messages that Contain "JAXRS" in the Message ID

10.20.1 JAXRS1000 to JAXRS1099

JAXRS1009: Default value, {0} could not be processed by method {1}.

Variable Information

{0}: Value defined in the DefaultValue annotation

{1}: Method signature

Explanation

The combination of the value defined in the DefaultValue annotation and the Java class of the method argument is invalid.

System Action

Processing is interrupted.

User Action

Check if the combination of the value defined in the DefaultValue annotation and the Java class of the method argument is valid.

SEVERE: JAXRS1014: Error processing resource method, {0}, for ResourceMethodDispatchProvider, {1}.

Variable Information

{0}: Method signature

{1}: JAX-RS entity provider name

Explanation

The resource method argument is invalid.

System Action

Processing is interrupted.

User Action

Check if the combination of the resource method argument Java class and annotation is valid.

SEVERE: JAXRS1016: Method, {0}, annotated with {1} of resource, {2}, is not recognized as valid resource method.

Variable Information

{0}: Resource method
{1}: HTTP method
{2}: Resource class

Explanation

The resource method definition is invalid.

System Action

Processing is interrupted.

User Action

Refer to the messages output before and after this message, and then take the required action.

JAXRS1036: The HTTP header field "Accept" with value "{0}" could not be parsed.

Variable Information

{0}: Value specified in the Accept header

Explanation

The value specified in the Accept header is invalid.

System Action

Processing is interrupted.

User Action

Check if the Accept header is correct.

SEVERE: JAXRS1040: A sub-resource locator, {0}, has an invalid URI path: {1}

Variable Information

{0}: Method signature
{1}: Characters defined in the @Path annotation

Explanation

The subresource locator @Path definition is invalid.

System Action

Processing is interrupted.

User Action

Define a string that is not a null string in the subresource locator @Path definition.

SEVERE: JAXRS1041: A sub-resource locator, {0}, can not have an entity parameter. Try to move the parameter to the corresponding resource method.

Variable Information

{0}: Method signature

Explanation

The subresource locator cannot have an entity parameter.

System Action

Processing is interrupted.

User Action

Remove arguments from the subresource locator for which no annotation has been declared.

WARNING: JAXRS1043: A HTTP GET method, {0}, MUST return a non-void type.

Variable Information

{0}: Method signature

Explanation

The void type was specified as the resource method return value type for HTTP GET.

System Action

Processing is continued.

User Action

To return content in the response, specify a non-void type as the resource method return value type.

WARNING: JAXRS1044: A HTTP GET method, {0}, should not consume any entity.

Variable Information

{0}: Method signature

Explanation

The resource method argument for HTTP GET contains an entity parameter.

System Action

Processing is continued.

User Action

If it is necessary to obtain the request message entity body, map the HTTP PUT or POST message to the resource method.

SEVERE: JAXRS1045: A sub-resource locator, {0}, MUST return a non-void type.

Variable Information

{0}: Method signature

Explanation

The return value of the subresource locator cannot be a void type.

System Action

Processing is interrupted.

User Action

Make the return value of the subresource locator the subresource class.

WARNING: JAXRS1048: A resource method, {0}, MUST be public scoped otherwise the method is ignored

Variable Information

{0}: Method signature

Explanation

The resource method must be public.

System Action

The resource method in Variable Information is ignored and processing is continued.

User Action

Use public as the resource method modifier.

WARNING: JAXRS1049: A sub-resource method, {0}, MUST be public scoped otherwise the method is ignored

Variable Information

{0}: Method signature

Explanation

The sub-resource method must be public.

System Action

The resource method in Variable Information is ignored and processing is continued.

User Action

Use public as the sub-resource method modifier.

SEVERE: JAXRS1053: The ResourceConfig instance does not contain any root resource classes.

Explanation

No root resource classes have been defined, or the root resource class has not been published.

System Action

Processing is interrupted.

User Action

Create the resource classes and configure the Application subclass so that they can be used. For details on how to create and publish the resource classes, refer to "[3.1.10 How to Create JAX-RS Applications](#)".

SEVERE: JAXRS1061: A (sub-)resource method, {0}, should have only one HTTP method designator. It currently has the following designators defined: {1}

Variable Information

{0}: Method signature

{1}: Declared request method designator

Explanation

Multiple request method designators cannot be declared in the resource method.

System Action

Processing is interrupted.

User Action

Declare one of the request method designators that were output to Variable Information in the resource method.

WARNING: JAXRS1063: A sub-resource method, {0}, with URI template, "{1}", is treated as a resource method

Variable Information

{0}: Method signature
{1}: URI template

Explanation

The @Path annotation value that was declared in the Variable Information method is a null character or "/", therefore the @Path annotation will be ignored.

System Action

The @Path annotation that was declared in the Variable Information method is ignored and processing is continued.

User Action

Not required.

10.20.2 JAXRS1500 to JAXRS1599

SEVERE: JAXRS1519: The provider class, {0}, could not be instantiated. Processing will continue but the class will not be utilized

Variable Information

{0}: Class

Explanation

The JAX-RS provider class or Application subclass could not be initialized.

System Action

Processing is interrupted.

User Action

Refer to the messages and stack traces output after this message, and then take the required action.

SEVERE: JAXRS1527: The following errors and warnings have been detected with resource and/or provider classes:

Explanation

A problem was detected in the resource classes or JAX-RS provider classes.

System Action

Processing is interrupted.

User Action

Refer to the messages output after this message, and then take the required action.

WARNING: JAXRS1528: The following warnings have been detected with resource and/or provider classes:

Explanation

A problem was detected in the resource classes or JAX-RS provider classes.

System Action

Processing is continued.

User Action

Refer to the messages output after this message, and then take the required action.

SEVERE: JAXRS1540: Exception occurred in JAXB Provider phase.

Explanation

An exception occurred during the request message XML parse processing.

System Action

Processing is interrupted.

User Action

Check if there is a problem with one of the following:

- Request message XML
- Java class definition converted to instance from XML using JAXB

SEVERE: JAXRS1541: Exception occurred in JAXB Provider phase.

Explanation

An exception occurred during the request message XML parse processing.

System Action

Processing is interrupted.

User Action

Check if there is a problem with one of the following:

- Request message XML
- Java class definition converted to instance from XML using JAXB

SEVERE: JAXRS1542: Exception occurred in JAXB Provider phase.

Explanation

An exception occurred during the request message XML parse processing.

System Action

Processing is interrupted.

User Action

Check if there is a problem with one of the following:

- Request message XML

- Java class definition converted to instance from XML using JAXB

SEVERE: JAXRS1543: Exception occurred in JAXB Provider phase.**Explanation**

An exception occurred during the request message XML parse processing.

System Action

Processing is interrupted.

User Action

Check if there is a problem with one of the following:

- Request message XML
- Java class definition converted to instance from XML using JAXB

SEVERE: JAXRS1544: Exception occurred in JAXB Provider phase.**Explanation**

An exception occurred during the request message XML parse processing.

System Action

Processing is interrupted.

User Action

Check if there is a problem with one of the following:

- Request message XML
- Java class definition converted to instance from XML using JAXB

10.20.3 JAXRS1700 to JAXRS1799

JAXRS1738: Invalid syntax for the template, "{0}". Check if a path parameter is terminated with a '}'.**Variable Information**

{0}: Value specified in the @Path annotation

Explanation

The value specified in the @Path annotation contains an invalid template variable.

System Action

Processing is interrupted.

User Action

Specify a string that ends with "}" in the template variable contained in the value specified in the @Path annotation.

JAXRS1739: Illegal character {0} at position {1} is not as the start of a name

Variable Information

{0}: Character contained in value specified in the @Path annotation
{1}: Position of invalid character

Explanation

The value specified in the @Path annotation contains an invalid template variable.

System Action

Processing is interrupted.

User Action

Specify a string of at least one character in the template variable contained in the value specified in the @Path annotation.

JAXRS1742: The name {0} is declared more than once with different regular expressions

Variable Information

{0}: Template variable name

Explanation

Multiple Variable Information template variable names were defined.

System Action

Processing is interrupted.

User Action

Check the template variable names contained in the @Path annotation of the JAX-RS application, and remove any duplicated names.

JAXRS1754: The quality source (qs) value, {0}, must be non-negative number

Variable Information

{0}: @Produces annotation qs parameter value

Explanation

A negative value was specified for the @Produces annotation qs parameter.

System Action

Processing is interrupted.

User Action

Specify a number from 0 to 1 for the @Produces annotation qs parameter.

JAXRS1755: The quality source (qs) value, {0}, is not a valid value

Variable Information

{0}: @Produces annotation qs parameter value

Explanation

The @Produces annotation qs parameter value is invalid.

System Action

Processing is interrupted.

User Action

Specify a number from 0 to 1 for the @Produces annotation qs parameter.

JAXRS1757: End of header

Explanation

An unexpected exception occurred during HTTP header parsing.

System Action

Processing is interrupted.

User Action

Check if any of the following is invalid:

- Content-Type header MIME type
 - Content-Type header MIME type property
 - HTTP header syntax
-

JAXRS1758: End of header

Explanation

An unexpected exception occurred during HTTP header parsing.

System Action

Processing is interrupted.

User Action

Check if any of the following is invalid:

- Content-Type header MIME type
 - Content-Type header MIME type property
 - HTTP header syntax
-

JAXRS1759: End of header

Explanation

An unexpected exception occurred during HTTP header parsing.

System Action

Processing is interrupted.

User Action

Check if any of the following is invalid:

- Content-Type header MIME type
 - Content-Type header MIME type property
 - HTTP header syntax
-

JAXRS1760: End of header

Explanation

An unexpected exception occurred during HTTP header parsing.

System Action

Processing is interrupted.

User Action

Check if any of the following is invalid:

- Content-Type header MIME type
- Content-Type header MIME type property
- HTTP header syntax

JAXRS1761: Next event is not a Token

Explanation

An invalid token was specified in the request message Content-Type header.

System Action

Processing is interrupted.

User Action

Check if the token that was specified in the request message Content-Type header MIME type property is correct.

JAXRS1762: Next event is not a Separator

Explanation

An invalid separator was specified in the request message Content-Type header.

System Action

Processing is interrupted.

User Action

Check if the separator (";") was specified in the request message Content-Type header MIME type property correctly.

JAXRS1764: Expected separator '{0}' instead of '{1}'

Variable Information

{0}: Separator that can be specified

{1}: Separator that was detected

Explanation

An invalid separator was specified in the request message Content-Type header.

System Action

Processing is interrupted.

User Action

Check if the following request message separators were specified correctly:

- Content-Type header MIME type separator "/"

- Content-Type header MIME type property separator ";"
- Content-Type header MIME type property value separator "="

JAXRS1766: Next event is not a Token or a Quoted String, {0}

Variable Information

{0}: Invalid value specified in the HTTP header

Explanation

An unexpected exception occurred during HTTP header parsing.

System Action

Processing is interrupted.

User Action

Check if any of the following is invalid:

- Content-Type header MIME type
- Content-Type header MIME type property
- HTTP header syntax

JAXRS1768: Quality value is greater than the maximum length, 5

Explanation

The Content-Type header MIME type property "q" value has exceeded 5 characters.

System Action

Processing is interrupted.

User Action

Specify a maximum of 5 characters for the Content-Type header MIME type property "q" value.

JAXRS1771: Error parsing Quality value: a decimal numeral '0' or '1' is expected rather than '{0}'

Variable Information

{0}: Content-Type header MIME type property "q" value

Explanation

The value that was specified for the Content-Type header MIME type property "q" value is invalid.

System Action

Processing is interrupted.

User Action

Specify a numeric value between 0.0 and 0.1 for the Content-Type header MIME type property "q" value.

JAXRS1773: The Quality value, {0}, is greater than 1

Variable Information

{0}: Content-Type header MIME type property "q" value

Explanation

The Content-Type header MIME type property "q" value has exceeded 1.0.

System Action

Processing is interrupted.

User Action

Specify a numeric value between 0.0 and 0.1 for the Content-Type header MIME type property "q" value.

JAXRS1776: End of header

Explanation

An unexpected error occurred during HTTP header parsing.

System Action

Processing is interrupted.

User Action

Check if any of the following is invalid:

- Content-Type header MIME type
 - Content-Type header MIME type property
 - HTTP header syntax
-

JAXRS1778: White space not allowed

Explanation

The request message Content-Type header contains invalid white space.

System Action

Processing is interrupted.

User Action

Check if invalid white space was specified in the following of the request message:

- Content-Type header MIME type
 - Content-Type header MIME type property
-

JAXRS1793: Error parsing media type '{0}'

Variable Information

{0}: MIME type

Explanation

MIME type parsing failed.

System Action

Processing is interrupted.

User Action

Check if the request message Content-Type header MIME type is valid.

10.20.4 JAXRS1800 to JAXRS1899

SEVERE: JAXRS1830: The class {0} is a not a public class and cannot be instantiated.

Variable Information

{0}: Class name

Explanation

The Variable Information class is not public, therefore it could not be instantiated.

System Action

Processing is interrupted.

User Action

Specify "public" in the Variable Information class scope.

SEVERE: JAXRS1831: The class {0} does not have a public constructor and cannot be instantiated.

Variable Information

{0}: Class name

Explanation

The public constructor was not defined in the Variable Information class, therefore it could not be instantiated.

System Action

Processing is interrupted.

User Action

Define the public constructor in the Variable Information class.

SEVERE: JAXRS1832: The class {0} is an abstract class and cannot be instantiated.

Variable Information

{0}: Class name

Explanation

The Variable Information class is an abstract class, therefore it could not be instantiated.

System Action

Processing is interrupted.

User Action

Define the Variable Information class as a concrete class.

SEVERE: JAXRS1833: The class {0} is an interface and cannot be instantiated.

Variable Information

{0}: Class name

Explanation

The Variable Information class is an interface, therefore it could not be instantiated.

System Action

Processing is interrupted.

User Action

Define the Variable Information class as a concrete class.

SEVERE: JAXRS1834: Missing dependency for constructor {0} at parameter index {1}

Variable Information

{0}: Constructor signature

{1}: Argument number

Explanation

The Variable Information constructor argument is invalid.

System Action

Processing is interrupted.

User Action

Check if an argument that corresponds to one of the following scenarios exists in the Variable Information constructor:

- Instantiation is not possible
- No annotation has been specified

SEVERE: JAXRS1835: Missing dependency for field: {0}

Variable Information

{0}: Field

Explanation

The Variable Information field is invalid.

System Action

Processing is interrupted.

User Action

Check if the following are valid in the Variable Information field:

- The combination of the annotation and field Java class
- Class constructor processing

SEVERE: JAXRS1836: Missing dependency for {0} at parameter at index {1}

Variable Information

{0}: Method signature
{1}: Argument number

Explanation

The Variable Information method argument is invalid.

System Action

Processing is interrupted.

User Action

Check if the following are valid in the Variable Information argument:

- The combination of the annotation and Java class
- Class constructor processing

10.20.5 JAXRS2500 to JAXRS2599

INFO: JAXRS2504: Scanning for root resource and provider classes in the paths:

Explanation

Resource classes and JAX-RS providers in the class path output below are being searched.

INFO: JAXRS2505: Scanning for root resource and provider classes in the packages:

Explanation

Resource classes and JAX-RS providers in the package output below are being searched.

WARNING: JAXRS2506: Class {0} is ignored as an instance is registered in the set of singletons

Variable Information

{0}: Class name

Explanation

There is already an instance that has been registered as a singleton resource, therefore the Variable Information class was ignored.

System Action

The resource class is ignored, and processing is continued.

User Action

Classes registered in the Application subclass `getSingletons()` instance are ignored as content that is registered in `getClasses()`. If the instance is not registered as a singleton resource, review the application processing.

INFO: JAXRS2509: No provider classes found.

Explanation

Could not find the JAX-RS provider classes.

INFO: JAXRS2510: Scanning for root resource and provider classes in the Web app resource paths:

Explanation

Root resource classes and JAX-RS provider classes are being searched from the web application paths output below.

INFO: JAXRS2515: Instantiated the Application class {0}. The following root resource and provider classes are registered: {1}

Variable Information

{0}: Application subclass name
{1}: List of registered root resource and JAX-RS provider class names

Explanation

The Variable Information application subclass JAX-RS application was instantiated and the root resource and JAX-RS provider classes were registered.

INFO: JAXRS2516: Instantiated the Application class {0}

Variable Information

{0}: Application subclass name

Explanation

The Variable Information application subclass JAX-RS application was instantiated.

INFO: JAXRS2519: Initiating Jersey application, version {0}

Variable Information

{0}: Internal version information

Explanation

The JAX-RS runtime will be initiated.

SEVERE: JAXRS2521: The RuntimeException could not be mapped to a response, re-throwing to the HTTP container

Explanation

RuntimeException has been thrown.

System Action

Processing is interrupted and an exception is thrown to the web container.

User Action

Check the stack trace that follows this message, and then take one of the following actions:

- If the exception was thrown from the application, review the application processing.
- If the output of "java.lang.StringIndexOutOfBoundsException: String index out of range:" and "com.sun.jersey.server.impl.application.WebApplicationContext.pushRightHandPathLength" are included in the stack trace, review the value specified in the @Path annotation.

SEVERE: JAXRS2523: The response of the WebApplicationException cannot be utilized as the response is already committed. Re-throwing to the HTTP container

Explanation

An exception occurred after the response was committed, therefore the exception was thrown to the container.

System Action

Processing is interrupted and an exception is thrown to the web container.

User Action

Refer to the exception messages and stack traces output after this message, and then take the required action.

SEVERE: JAXRS2540: The Jersey servlet application, named `javax.ws.rs.core.Application`, has no servlet mapping

Explanation

Servlet mapping is not defined in the servlet that receives the JAX-RS requests.

System Action

Processing to register the JAX-RS application is interrupted.

User Action

Define servlet mapping for the `javax.ws.rs.core.Application` servlet.

INFO: JAXRS2541: Registering the Jersey servlet application, named `javax.ws.rs.core.Application`, with the following root resource and provider classes: {0}

Variable Information

{0}: Resource class names, JAX-RS provider class names

Explanation

The servlet that receives the JAX-RS requests was registered and the resource and JAX-RS provider classes were added.

INFO: JAXRS2542: Registering the Jersey servlet application, named {0}, at the servlet mapping, {1}, with the Application class of the same name

Variable Information

{0}: Registered servlet name (same as Application subclass name)

{1}: Added servlet mapping value

Explanation

The servlet that receives the JAX-RS requests was registered and servlet mapping was added.

SEVERE: JAXRS2543: Mapping conflict. A Servlet declaration exists with same mapping as the Jersey servlet application, named {0}, at the servlet mapping, {1}. The Jersey servlet is not deployed.

Variable Information

{0}: Servlet name (same as Application subclass name)

{1}: Servlet mapping value

Explanation

A servlet mapping conflict was detected while the servlet that receives the JAX-RS requests was being registered.

System Action

Processing to register the JAX-RS application is interrupted.

User Action

Take one of the following actions:

- Change the value defined for the Application subclass `@ApplicationPath` annotation.
- Change the servlet mapping for the existing servlet.

INFO: JAXRS2544: Registering the Jersey servlet application, named {0}, at the servlet mapping, {1}, with the Application class of the same name

Variable Information

{0}: Servlet name (same as Application subclass name)

{1}: Servlet mapping value

Explanation

The servlet that receives the JAX-RS requests was registered and servlet mapping was added.

SEVERE: JAXRS2545: Mapping conflict. A Servlet registration exists with same mapping as the Jersey servlet application, named {0}, at the servlet mapping, {1}. The Jersey servlet is not deployed.

Variable Information

{0}: Servlet name (same as Application subclass name)

{1}: Servlet mapping value

Explanation

A servlet mapping conflict was detected while the servlet that receives the JAX-RS requests was being registered.

System Action

Processing to register the JAX-RS application is interrupted.

User Action

Take one of the following actions:

- Change the value defined for the Application subclass `@ApplicationPath` annotation.
- Change the servlet mapping for the existing servlet.

SEVERE: JAXRS2546: The Jersey servlet application, named {0}, is not annotated with ApplicationPath and has no servlet mapping

Variable Information

{0}: Servlet name (same as Application subclass name)

Explanation

`@ApplicationPath` or servlet mapping is not defined in the JAX-RS application.

System Action

Processing to register the JAX-RS application is interrupted.

User Action

Take one of the following actions:

- Define `@ApplicationPath` in the Application subclass.

- Define servlet mapping in the web application deployment descriptor (web.xml).

INFO: JAXRS2547: Registering the Jersey servlet application, named {0}, with the Application class of the same name

Variable Information

{0}: Servlet name (same as Application subclass name)

Explanation

The servlet that receives the JAX-RS requests was registered. @ApplicationPath of the Application subclass will be ignored and the existing servlet mapping will be assigned.

SEVERE: JAXRS2571: A message body reader for Java class {0}, and Java type {1}, and MIME media type {2} was not found.

The registered message body readers compatible with the MIME media type are: {3}

Variable Information

{0}: Class name

{1}: Class name, or class name<generic type name>

{2}: MIME type

{3}: Internal information

Explanation

The MessageBodyReader class that is compatible with the Variable Information class name and MIME type was not found.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Check if the request message Content-Type header MIME type is correct.
- Implement the MessageBodyReader class that is compatible with the Variable Information class name and MIME type.
- For details on the standard data types that can be used in the JAX-RS application, refer to "[3.1.10 How to Create JAX-RS Applications](#)".

SEVERE: JAXRS2573: A message body writer for Java class {0}, and Java type class {1}, and MIME media type {2} was not found

Variable Information

{0}: Class name

{1}: Class name, or class name<generic type name>

{2}: MIME type

Explanation

The MessageBodyWriter class that is compatible with the Variable Information class name and MIME type was not found.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Check if the request message Accept header MIME type is correct.
- Implement the `MessageBodyWriter` class that is compatible with the Variable Information class name and MIME type.
- For details on the standard data types that can be used in the JAX-RS application, refer to "[3.1.10 How to Create JAX-RS Applications](#)".

SEVERE: JAXRS2574: The registered message body writers compatible with the MIME media type are: {0}

Variable Information

{0}: Internal information

Explanation

This is an internal information message.

System Action

Processing is interrupted.

User Action

Refer to the message output immediately before this message, and then take the required action.

SEVERE: JAXRS2575: The RuntimeException could not be mapped to a response, re-throwing to the HTTP container

Explanation

The application has thrown `RuntimeException`.

System Action

Processing is interrupted and an exception is thrown to the web container.

User Action

Refer to the stack traces output after this message, and review the application processing.

SEVERE: JAXRS2576: The exception contained within `MappableContainerException` could not be mapped to a response, re-throwing to the HTTP container

Explanation

The application has thrown an exception or error.

System Action

Processing is interrupted.

User Action

Refer to the exception messages and stack traces output after this message, and then take the required action.

SEVERE: JAXRS2577: Mapped exception to response: {0} {{1}}

Variable Information

{0}: HTTP status code
{1}: Meaning of status code

Explanation

An exception was mapped to the Variable Information response.

System Action

Processing is interrupted.

User Action

Refer to the exception messages and stack traces output after this message, and then take the required action.

SEVERE: JAXRS2578: Mapped exception to response: {0}

Variable Information

{0}: HTTP status code

Explanation

An exception was mapped to the Variable Information response.

System Action

Processing is interrupted.

User Action

Refer to the exception messages and stack traces output after this message, and then take the required action.

INFO: JAXRS2597: Couldn't find JAX-B element for class {0}

Variable Information

{0}: Class name

Explanation

This is an internal message.

10.20.6 JAXRS2700 to JAXRS2799

JAXRS2748: The Application class {0} could not be instantiated

Variable Information

{0}: Class name

Explanation

The Application subclass could not be instantiated.

System Action

Processing is interrupted.

User Action

Refer to the stack traces output before this message, and review the application processing.

JAXRS2770: Exception obtaining parameters

Explanation

An exception was detected during the resource method call.

System Action

Processing is interrupted.

User Action

Refer to the stack traces output after this message, and then take the required action.

10.20.7 JAXRS2800 to JAXRS2899

SEVERE: JAXRS2835: Illegal URI template for root resource class {0}: {1}

Variable Information

{0}: Class name

{1}: Detail message

Explanation

A value specified in the root resource class @Path annotation is invalid.

System Action

Processing is interrupted.

User Action

Take action according to the detail message.

SEVERE: JAXRS2836: Conflicting URI templates. The URI template {0} for root resource class {1} and the URI template {2} transform to the same regular expression {3}

Variable Information

{0}: URI template

{1}: Resource class name

{2}: URI template

{3}: URI template regular expression

Explanation

Variable Information ({0}) and URI template ({2}) are converted to the same regular expression.

System Action

Processing is interrupted.

User Action

Do not specify a URI template that will be converted to the same regular expression in multiple resource class @Path annotations.

SEVERE: JAXRS2844: Illegal URI template for sub-resource locator {0}: {1}

Variable Information

{0}: Method signature

{1}: Detail message

Explanation

A value specified in the subresource locator @Path annotation is invalid.

System Action

Processing is interrupted.

User Action

Take action according to the detail message.

SEVERE: JAXRS2846: Illegal URI template for sub-resource method {0}: {1}

Variable Information

{0}: Method signature
{1}: Detail message

Explanation

The subresource method URI template is invalid.

System Action

Processing is interrupted.

User Action

Refer to the detail message and check the subresource method definition.

SEVERE: JAXRS2847: Consuming media type conflict. The resource methods {0} and {1} can consume the same media type

Variable Information

{0}: Resource method
{1}: Resource method

Explanation

The resource method definitions are duplicated.

System Action

Processing is interrupted.

User Action

Check if the following definitions are duplicated in multiple resource methods.

- Access URL
- HTTP method
- MIME type and subtype specified in the @Consumes annotation

SEVERE: JAXRS2848: Producing media type conflict. The resource methods {0} and {1} can produce the same media type

Variable Information

{0}: Resource method
{1}: Resource method

Explanation

The resource method definitions are duplicated.

System Action

Processing is interrupted.

User Action

Check if the following definitions are duplicated in multiple resource methods.

- Access URL
- HTTP method
- @Produces annotation value

JAXRS2849: Could not initialized the WebApplication.

Explanation

Failed to initialize the JAX-RS application.

System Action

Processing is interrupted.

User Action

Refer to the JAXRS label message output before this message, and then take the required action.

10.20.8 JAXRS4100 to JAXRS4199

INFO: JAXRS4101: GlobalStatsProvider registered

Explanation

This is an internal initialization message.

10.20.9 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.21 Messages that Contain "JAXWS" in the Message ID

10.21.1 JAXWS0200 to JAXWS0299

JAXWS0201: Oneway operation should not throw any checked exceptions class: {0} method: {1} throws: {2}

Variable Information

- {0}: Class name
- {1}: Method name
- {2}: Exception class name

Explanation

Exceptions cannot be specified in methods that declare the @javax.jws.Oneway annotation.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Do not specify exceptions in methods that declare the @javax.jws.Oneway annotation.
- If notifying an error to the client, ensure that the @javax.jws.Oneway annotation is not declared.

10.21.2 JAXWS0300 to JAXWS0399

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. Another option is to enable AddressingFeature to enabled runtime to uniquely identify WSDL operation using wsa:Action header.

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 may 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 if 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 if 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.

10.21.3 JAXWS1000 to JAXWS1099

JAXWS1011: Incorrect usage of Annotation {0} on {1}, ParameterStyle can only be WRAPPED with RPC Style Web service.

Variable Information

{0}: Annotation name
{1}: Implementation class name or name of the service endpoint interface

Explanation

For RPC literals, only WRAPPED can be specified as the parameterStyle value of 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 the class or the interface {1}, or omit the `parameterStyle` parameter and ensure that the default value is used.

10.21.4 JAXWS2100 to JAXWS2199

JAXWS2100: `BindingProvider.SOAPACTION_URI_PROPERTY` is set in the `RequestContext` but is ineffective, Either set `BindingProvider.SOAPACTION_USE_PROPERTY` to true or enable `AddressingFeature`

Explanation

`BindingProvider.SOAPACTION_URI_PROPERTY` specified in `RequestContext` has become ineffective.

System Action

Processing is continued.

User Action

If the `SOAPACTION` value has to be sent, take the following action:

- Set `BindingProvider.SOAPACTION_USE_PROPERTY` to "true".

If the `SOAPACTION` value does not have to be sent, take one of the following actions:

- Ignore this message.
- Do not set `BindingProvider.SOAPACTION_USI_PROPERTY`.

JAXWS2115: An `InvocationTargetException` occurred. {0}

Variable Information

{0}: Exception detail information

Explanation

An exception has been thrown in the web service application.

User Action

Follow the specifications in Exception detail information or the application, and then take action if necessary.

JAXWS2116: A `Throwable` occurred. {0}

Variable Information

{0}: Exception detail information

Explanation

An exception has been thrown during web service application call or during response message creation.

User Action

Possible causes are as follows:

- The argument data of the received request message is invalid.

- The web service application resources are invalid.

If the argument data of the received request message is invalid, check if the caller sent the correct message based on the correct WSDL.

If the web service application resources are invalid, check if the web service application or the class used in the argument of the target public method by the caller is 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 Exception detail information to remove the cause of the error.

10.21.5 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.22 Messages that Contain "JDBCRA" in the Message ID

10.22.1 JDBCRA0000 to JDBCRA0099

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 is not set.

System Action

Processing is interrupted.

User Action

Ensure that the specified class name is correct, or that the classpath for the specified class is set correctly.

Also, the repository may not be synchronized. Change the update date and time for domain.xml to the current time. Refer to "[2.1.4 Repository Synchronization](#)" for details.

JDBCRA0082: {0} is wrong format for java.util.properties. Set java.util.properties like this: {[value=name[,value=name]...]}

Variable Information

{0}: Property value

Explanation

The java.util.properties property value type has not been correctly specified.

System Action

Processing is interrupted.

User Action

If the property value type is java.util.properties, specify the value for the property in the "[name=value[,name=value]...]" format.

10.22.2 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.23 Messages that Contain "JMS" in the Message ID

10.23.1 JMS00 to JMS09

JMS08: JMS Service Connection URL is : {0}

Variable Information

{0}: URL information

Explanation

URL information {0} is configured for the JMS service.

10.23.2 JMS010 to JMS019

JMS010: ADDRESSLIST in setJmsServiceProvider: {0}

Variable Information

{0}: URL information

Explanation

URL information {0} is configured for the JMS service.

JMS013: end point determine destination name, Res name: {0}, JNDI name: {1} descriptor name : {2}

Variable Information

{0}: Resource type

{1}: JNDI name

{2}: Internal information

Explanation

The message-driven bean uses the JNDI name {1} of the resource type {0}.

10.23.3 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.24 Messages that Contain "JPA" in the Message ID

10.24.1 JPA0000 to JPA0099

JPA0020: caught throwable

Explanation

Refer to "[10.43.27 Exception Information that Starts with "org.eclipse.persistence"](#)" - "Exception information format".

JPA0022: caught throwable

Explanation

Refer to "[10.43.27 Exception Information that Starts with "org.eclipse.persistence"](#)" - "Exception information format".

10.24.2 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.25 Messages that Contain "JTS" in the Message ID

10.25.1 JTS5000 to JTS5099

WARNING: JTS5028: XAException occurred during recovery of XAResource objects; XA Error Code : [{0}]

Variable Information

{0}: Error code

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 output immediately after this message to remove the cause of the error.



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Depending on the database, it may 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 "[F.3 Database](#)", and the database manual.

.....

WARNING: JTS5057: FailPoint : [{0}]

Variable Information

{0}: Transaction status

Explanation

The transaction failed with the {0} status.

System Action

Processing is continued.

User Action

Refer to the exception information, and remove the cause of the error.

JTS5069: Exception occurred while accessing JDBC resource for transaction log.

Explanation

Failed to access the JDBC resource used in the transaction log.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information output immediately after this message to remove the cause of the error.

JTS5070: 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 if the correct JDBC resource name is specified in the transaction service additional property db-logging-resource.

10.25.2 JTS5100 to JTS5199

ERROR: JTS5151: Local transaction already has multiple non-XA Resources: cannot add XA Resource.

Explanation

The local transaction already contains multiple non-XA resources. Additional XA resources cannot be added.

System Action

An exception is returned.

User Action

Perform the following:

- Check if the resources used in the application program are correct.

- Check if the resource type (XA resources/non-XA resources) for the resources used is correct.

If both items are incorrect, follow the action advised to remove the cause of the error and reexecute processing.

ERROR: JTS5152: Global transaction already has 1 non-XA Resource: cannot add more non-XA resources.**Explanation**

The global transaction already contains one non-XA resource. Additional non-XA resources cannot be added.

System Action

An exception is returned.

User Action

Perform the following:

- Check if the resources used in the application program are correct.
- Check if the resource type (XA resources/non-XA resources) for the resources used is correct.

If both items are incorrect, follow the action advised to remove the cause of the error and reexecute processing.

ERROR: JTS5153: {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 is continued.

User Action

Refer to the exception information output before and after this message, and to the respective resource manager manuals (for example, database, JDBC drivers, or JMS providers), and remove the cause of the error.

10.25.3 JTS6000 to JTS6099

JTS6100: 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

Refer to the exception information output before and after this message, and to the respective resource manager manuals (for example, database, JDBC drivers, or JMS providers), and remove the cause of the error.

JTS6101: 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

Refer to the exception information output before and after this message, and to the respective resource manager manuals (for example, database, JDBC drivers, or JMS providers), and remove the cause of the error.

JTS6102: 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

Refer to the exception information output before and after this message, and to the respective resource manager manuals (for example, database, JDBC drivers, or JMS providers), and remove the cause of the error.

JTS6103: 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

Refer to the exception information output before and after this message, and to the respective resource manager manuals (for example, database, JDBC drivers, or JMS providers), and remove the cause of the error.

JTS6104: 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

Refer to the exception information output before and after this message, and to the respective resource manager manuals (for example, database, JDBC drivers, or JMS providers), and remove the cause of the error.

10.25.4 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.26 Messages that Contain "MDB" in the Message ID

10.26.1 MDB00100 to MDB00199

MDB00103: [MDBContainer] ASync task has not finished. Giving up after {0} mili-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 the required action.

Alternatively, measure the resource adapter endpointDeactivation method time and set an appropriate value for the connector service shutdown timeout.

10.26.2 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.27 Messages that Contain "MQJMSRA" in the Message ID

10.27.1 MQJMSRA_DC2000 to MQJMSRA_DC2099

MQJMSRA_DC2001: {0}

Variable Information

{0}: Warning information

Explanation

An exception was detected while onMessage() was being processed.

System Action

Processing is interrupted.

User Action

Refer to [Detail Information (Warning)] below, and remove the cause of Warning information in ({0}) if necessary.

If the problem cannot be resolved by taking the action in [Detail Information (Warning)], collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

[Detail Information (Warning)]

| Warning information in Variable Information ({0}) | Variable Information in Warning information | Action |
|--|--|--|
| connectionId={1}:delete_temporary_destination={2}:JMServiceException={3} | {1}: Connection ID {2}: Temporary physical storage destination {3}: Detail information | Failed to delete the temporary physical storage destination {2}. Refer to Detail information ({3}), and then take the required action. |
| connectionId={1}:_setClientID():JMService.setClientId():JMServiceException={2} | {1}: Connection ID {2}: Detail information | Failed to configure the client ID. Refer to Detail information ({2}), and then take the required action. |
| connectionId={1}:_close():JMService.destroyConnection():JMServiceException={2} | {1}: Connection ID {2}: Detail information | Failed to destroy the connection {1}. Refer to Detail information ({2}), and then take the required action. |

10.27.2 MQJMSRA_DM4000 to MQJMSRA_DM4099

MQJMSRA_DM4001: {0}

Variable Information

{0}: Error information

Explanation

The exceptions output to Variable Information {0} occurred.

System Action

Processing is interrupted.

User Action

Refer to [Detail Error Information] below, and remove the cause of Error information in ({0}) if necessary.

If the problem cannot be resolved by taking the action in [Detail Error Information], collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

[Detail Error Information]

| Error information in Variable Information ({0}) | Variable Information in Error information | Action |
|---|---|---|
| setJMServiceDeliveryMode():Invalid deliveryMode={1} | {1}: Value that is set | The delivery mode value specified for MessageProducer.send() is incorrect. Check the application to determine whether |

| Error information in Variable Information ({0}) | Variable Information in Error information | Action |
|---|---|---|
| | | the following are specified as the delivery mode: <ul style="list-style-type: none"> - DeliveryMode.PERSISTENT - DeliveryMode.NON_PERSISTENT |
| setJMSExpiration():Invalid expiration={1} | {1}: Value that is set | The validity period specified for MessageProducer.send() is incorrect. Review the application to determine whether the correct value is specified. |
| setJMSPriority():Invalid priority={1} | {1}: Value that is set | The priority value specified for MessageProducer.send() is incorrect. Review the application to determine whether the value specified for the delivery mode is from 0 to 9. |

10.27.3 MQJMSRA_DMP4000 to MQJMSRA_DMP4099

MQJMSRA_DMP4001: {0}

Variable Information

{0}: Error information

Explanation

The exceptions output to Variable Information {0} occurred.

System Action

Processing is interrupted.

User Action

Refer to [Detail Error Information] below, and remove the cause of Error information in ({0}) if necessary.

If the problem cannot be resolved by taking the action in [Detail Error Information], collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

[Detail Error Information]

| Error information in Variable Information ({0}) | Variable Information in Error information | Action |
|---|---|---|
| setDeliveryMode():Invalid deliveryMode={1} | {1}: Value that is set | The value specified for MessageProducer.setDeliveryMode() is incorrect. Review the application to determine whether the correct value is specified. |
| setPriority():Invalid to set priority outside (0-9):value={1} | {1}: Value that is set | The value specified for MessageProducer.setPriority() is incorrect. Review the application to determine whether the correct value is specified. |

| Error information in Variable Information ({0}) | Variable Information in Error information | Action |
|---|--|---|
| setTimeToLive():Invalid to set timeToLive as negative:value={1} | {1}: Value that is set | The value specified for MessageProducer.setTimeToLive() is incorrect. Review the application to determine whether the correct value is specified. |
| send(Message, deliveryMode, priority, timeToLive):Unsupported Operation:Producing destination not specified (null) in MessageProducer with unspecified Destination | None | Destination cannot be omitted from Session.createProducer() and MessageProducer.send(). Review the application. |
| send(Destination, Message, deliveryMode, priority, timeToLive):Unsupported Operation:Producing to destination:{1}:in MessageProducer with specified Destination={2} | {1}: Destination specified in the send method {2}: Destination specified in the createProducer method | Destination cannot be specified for Session.createProducer() and MessageProducer.send(). Review the application. |
| send(Destination, Message, deliveryMode, priority, timeToLive):Null Destination used: | None | The null value cannot be specified for Destination of MessageProducer.send(). Review the application. |
| {1}MessageProducer is closed:Id={2} | {1}: Method name {2}: Producer ID | Review the application to determine whether MessageProducer has been closed. |

10.27.4 MQJMSRA_DS2000 to MQJMSRA_DS2099

MQJMSRA_DS2001: {0}

Variable Information

{0}: Warning information

Explanation

The exceptions output to Variable Information {0} occurred.

System Action

Processing is continued.

User Action

Refer to [Detail Information (Warning)] below, and remove the cause of Warning information in ({0}) if necessary.

If the problem cannot be resolved by taking the action in [Detail Information (Warning)], collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

[Detail Information (Warning)]

| Warning information in Variable Information ({0}) | Variable Information in Warning information | Action |
|---|---|---|
| sessionId={1}:unsubscribe():name:{2}:Is in use | {1}: session ID {2}: durable | Check if TopicSubscriber has closed before calling Session.unsubscribe. |

| Warning information in Variable Information ({0}) | Variable Information in Warning information | Action |
|---|---|--|
| | subscription name | |
| sessionId={1}:Session.setMessageListener() | {1}: session ID | Session.setMessageListener cannot be used in web applications and EJB applications. Check if Session.setMessageListener has been used in web applications and EJB applications. |

10.27.5 MQJMSRA_DS4000 to MQJMSRA_DS4099

MQJMSRA_DS4001: {0}

Variable Information

{0}: Error information

Explanation

The exceptions output to Variable Information {0} occurred.

System Action

Processing is interrupted.

User Action

Refer to [Detail Error Information] below, and remove the cause of Error information in ({0}) if necessary.

If the problem cannot be resolved by taking the action in [Detail Error Information], collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

[Detail Error Information]

| Error information in Variable Information ({0}) | Variable Information in Error information | Action |
|---|---|---|
| JMSServiceException on send message: {1} | {1}: Detail information | The message could not be sent. Refer to Detail information ({1}), and then take the required action. |
| sessionId={1}:{2}:name:{3}:error={4} | {1}: session ID {2}: Method name {3}: name {4}: Detail information | Failed to process the method {2}. Refer to Detail information ({4}), and then take the required action. |

10.27.6 MQJMSRA_EB4000 to MQJMSRA_EB4099

MQJMSRA_EB4001: {0}

Variable Information

{0}: Error information

Explanation

The exceptions output to Variable Information {0} occurred.

System Action

Processing is interrupted.

User Action

Refer to [Detail Error Information] below, and remove the cause of Error information in ({0}) if necessary.

If the problem cannot be resolved by taking the action in [Detail Error Information], collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

[Detail Error Information]

| Error information in Variable Information ({0}) | Variable Information in Error information | Action |
|---|---|--|
| stop:Exception on in-VM broker shutdown:msg={1} | {1}: Internal information | The <code>imqcmd shutdown bkr</code> subcommand cannot be executed for the message broker running in the EMBEDDED mode. The message broker status is invalid, so restart the Interstage Java EE 6 DAS service. |

10.27.7 MQJMSRA_RA1100 to MQJMSRA_RA1199

MQJMSRA_RA1101: {0}

Variable Information

{0}: Detail information

Explanation

This is a resource adapter information message.

| Detail information in Variable Information ({0}) | Explanation |
|--|---|
| GlassFish MQ JMS Resource Adapter stopping... | The JMS resource adapter will be stopped. |
| GlassFish MQ JMS Resource Adapter stopped. | The JMS resource adapter was stopped. |

10.27.8 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.28 Messages that Contain "MQRA" in the Message ID



If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

MQRA:DCF:allocation failure:createConnection:{0}

Variable Information

{0}: Error information

Explanation

Failed to create the connection.

System Action

Processing is interrupted.

User Action

Refer to Error information ({0}), and then take the required action.

MQRA:EC:Error creating Direct Message Consumer

Explanation

Failed to create the consumer.

System Action

Processing is continued.

User Action

Refer to the message output immediately after this message, and then take the required action.

MQRA:EC:Need Valid ClientID-{0}

Variable Information

{0}: Client ID

Explanation

The value that was specified as the client ID ({0}) is invalid.

System Action

Processing is interrupted.

User Action

Check if the value that was specified as the client ID ({0}) is correct.

MQRA:LT:rollback exception:{0}

Variable Information

{0}: Error information

Explanation

Failed to roll back the transaction.

System Action

Processing is interrupted.

User Action

Refer to Error information ({0}), and then take the required action.

MQRA:LT:rollbackTransaction exception:Connection is closed

Explanation

The connection is closed, therefore the transaction rollback failed.

System Action

Processing is interrupted.

User Action

If "LocalTransaction" was specified for the JMS connection factory definition item transaction support, roll back the transaction before closing the connection.

MQRA:MC:InvalidClientIDException-{0}

Variable Information

{0}: Detail information

Explanation

An invalid client ID was used.

System Action

An exception is posted to the application.

User Action

Refer to Detail information ({0}), and then take the required action.

10.29 Messages that Contain "NAM" in the Message ID

10.29.1 NAM1000 to NAM1099

NAM1007: Problem with membership change notification. Exception occurred : {0}

Variable Information

{0}: Exception information

Explanation

An error occurred during JNDI processing.

System Action

Processing is continued.

User Action

Refer to information output after this message, and remove the cause of the error.

10.29.2 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.30 Messages that Contain "OM" in the Message ID

10.30.1 OM1000 to OM1099

ERROR: ISJE6_OM1022: Cluster unable to start

Explanation

One of the following occurred:

- Some server instances under the IJServer cluster failed to start.
- All server instances under the IJServer cluster failed to start.

System Action

Processing is continued.

User Action

Follow the action advised in the event log (Windows(R)) or the system log (Solaris/Linux) messages output before and after this message, and investigate the cause of the failure to start the IJServer cluster.



.....
The start-cluster command returns 0 if some server instances under the IJServer cluster fail to start.
.....

SEVERE: OM1036: Internal error occurred. DETAIL={0}

Variable Information

{0}: Error information

Explanation

One of the following occurred:

1. Unable to process, because a request was accepted during start processing.
2. An error occurred during internal processing.

User Action

1. Ignore this message if it is output when the Interstage Java EE 6 DAS service or the IJServer cluster is started. Requests accepted during start processing will not be processed.

2. Refer to any messages that may output at the same time, and then take the action indicated.
If no other messages are output, collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

10.30.2 OM2100 to OM2199

ERROR: OM2111: Web server connector does not exist.

Explanation

The web server connector does not exist.

System Action

Processing is interrupted.

User Action

After installing the web server connector, reexecute the command.

ERROR: OM2112: Could not execute command. Command={0} Detail={1}

Variable Information

{0}: Command

{1}: Detail information

Explanation

The command could not be executed.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- If a message with a message number is output to Detail information, take the action indicated by the message.
- Check if the command exists.

If the command does not exist, it is possible that the command may have been deleted or the product may have been installed incorrectly. Install the product again.

If the command exists, check the command's execution privileges and configure the settings as a user with administrator privileges.

If the problem is still not resolved, collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

ERROR: OM2113: Specified port number of instance has already been used. Instance={0} Port={1}

Variable Information

{0}: Server instance

{1}: Port number

Explanation

The server instance port number is already being used.

System Action

Processing is interrupted.

User Action

Specify a unique port number that is not used as the server instance port number.

ERROR: OM2114: Invalid value was specified for a port number of instance. Instance={0} Port={1}

Variable Information

{0}: Server instance

{1}: Port number (system property)

Explanation

The server instance port number is invalid.

System Action

Processing is interrupted.

User Action

Set a value for the port number (system property) that is valid on the server instance.

ERROR: OM2115: Duplicate context root of an application has been specified. Application={0} Context root={1}

Variable Information

{0}: Application

{1}: Context root

Explanation

The context root of the application is duplicated.

System Action

Processing is interrupted.

User Action

Set the context root within the application or other applications, so that it is not duplicated.

ERROR: OM2116: Context root of a web application is invalid value. Web application={0}

Variable Information

{0}: Web application

Explanation

The context root of the web application is invalid.

System Action

Processing is interrupted.

User Action

Refer to the "[Context root](#)" web application definition item, and set a valid value for the context root of the web application.

ERROR: OM2120: An error occurred while setting web server connector. Detail={0}

Variable Information

{0}: Detail information

Explanation

An error occurred while setting web server linkages.

System Action

Processing is interrupted.

User Action

Refer to the message displayed in Detail information, and then take the required action.

Inconsistencies may be generated in web server linkage settings if a message displaying what has already been set in Detail information has been output, and you still cannot take the actions indicated by the message. Refer to ["Chapter 11 Troubleshooting" - "Message OM2120 Is Output When the asadmin Command Is Executed"](#).

Alternatively, if this message is output during server instance creation, temporarily delete the server instance and create it again.

ERROR: OM2121: Rollback of web server connector failed.

Explanation

The rollback of settings for web server linkages failed.

System Action

Processing is interrupted.

User Action

After removing the cause of the error based on the messages output before and after, and based on the messages output to the server log, take the following actions:

- Reconfigure web server linkages
 1. Use the asadmin delete-web-server-ref subcommand to temporarily delete linkages with the web server.
 2. Use the asadmin create-web-server-ref subcommand to relink with the web server.
 3. If necessary, use the asadmin update-web-server-connector-config subcommand to update the environment settings of the web server connector.

WARNING: OM2130: Failed to change request-check value into {0}.

Variable Information

{0}: Value that could not be changed

Explanation

After configuring the web server linkage settings, the attempt to change the "operation mode for access to the web container (request-check)" definition item failed.

System Action

Processing is continued. The operation mode for accessing the web container is not changed.

User Action

Change the operation mode for access to the web container using the asadmin set subcommand. For details, refer to ["Operation mode for access to the web container"](#) in "Network Configuration Definition Items".

10.30.3 OM3000 to OM3099

WARNING: 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 output to the Java VM log, and check if there are any deadlocks, loops, or processing delays in the application.
- It is possible that the timeout interval is too short. Set "Maximum Application Processing Time" to a suitable value (anticipated processing time). For details on "Maximum Application Processing Time", refer to "[7.1 PCMI Service Definition Items](#)".

INFO: OM3006: An application timeout was notified to the PCMI runtime environment.

Explanation

Application timeout has been notified to the PCMI service.

WARNING: OM3007: The application timeout could not be notified to the PCMI runtime environment.: CODE={0}

Variable Information

- {0}: Internal information

Explanation

Application timeout could not be notified to the PCMI service.

System Action

Processing is continued.

User Action

- Check the server log, refer to messages output at the same time, and correct the error.
- Refer to the event log or the system log, refer to the error message, and correct the error.

INFO: OM3008: The running status of the cluster was notified to the PCMI runtime environment.

Explanation

A keep alive notification has been sent to the PCMI service.

WARNING: OM3009: The running status of the cluster could not be notified to the PCMI runtime environment.: CODE={0}

Variable Information

{0}: Internal information

Explanation

A keep alive notification could not be sent to the PCMI service.

System Action

Processing is continued.

User Action

- Refer to the message and the event log or the system log that was output to the server log at the same time to check if an error has occurred.
 - Check the log, and if message OM3010 has not been output, transmission of a keep alive notification to the PCMI service was successful, and no further action is necessary.
 - Check the log, and if message OM3008 has been output after message OM3010, transmission of a keep alive notification to the PCMI service was successful, and no further action is necessary.
- If the above does not apply, refer to the Java VM log to check if a problem has occurred.

WARNING: OM3014: An error occurred in the server application timer function. PCMI Error Code={0}

Variable Information

{0}: Error information

Explanation

Communication with the PCMI service failed.

System Action

Processing is continued.

The server application timer function is not operating correctly.

User Action

If Error information {0} that is output is 1100, check if the PCMI service stop operation has been performed before stopping the Interstage Java EE 6 DAS service or the server instance. In this case, take one of the following actions:

- Stop the Interstage Java EE 6 DAS service or the server instance before you stop the PCMI service.
- Use the stop script to stop the Interstage Java EE 6 DAS service or the server instance when you stop the PCMI service. For details on stop scripts, refer to "[4.2.6 Exit Function during Service Startup/Stop](#)".

If the above does not apply, take the following actions:

- Take the action indicated in the messages output before and after this message.
- Follow the action advised in messages output to the event log (Windows (R)) or the system log (Solaris/Linux), and investigate the cause of the failure.

If the problem is still not resolved despite taking the above action, collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

10.30.4 OM3100 to OM3199

WARNING: OM3109: Specified attribute value from logging property file is invalid. The default value used. key={0} value={1} default={2}

Variable Information

{0}: Logger definition items
{1}: Value that was set
{2}: Default value

Explanation

The value set for the definition item specified as the logger definition item name is invalid.

System Action

The value specified as the default value for the definition item specified as the logger definition item name is used instead, and the processing continues.

User Action

Specify a value within the definition item range as the value set as the definition item specified as the logger definition item name.

WARNING: OM3110: Specified access log value is invalid. The default value used. key={0} value={1} default={2}

Variable Information

{0}: HTTP access log property name
{1}: Value that is set
{2}: Default value

Explanation

The value set for the definition item specified as the HTTP access log property name is invalid.

System Action

The value specified as the default value for the definition item specified as the HTTP access log property name is used instead, and the processing continues.

User Action

Specify a value within the definition item range as the value set as the definition item specified as the HTTP access log property name.

10.30.5 OM4000 to OM4099

INFO: ISJE6_OM4000: Java EE 6 resource backup has started.

Explanation

Backup of resources has started.

INFO: ISJE6_OM4001: Java EE 6 resource backup completed normally.

Explanation

Backup of resources ended normally.

ERROR: ISJE6_OM4002: Java EE 6 resource backup ended abnormally.

Explanation

Backup of 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: ISJE6_OM4003: Restore of Java EE 6 resources has started.

Explanation

Restore resources has started.

INFO: ISJE6_OM4004: Restore of Java EE 6 resources is complete.

Explanation

Restore resources ended normally.

ERROR: ISJE6_OM4005: Restore of the Java EE 6 resources is ended abnormally.

Explanation

Restore 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: ISJE6_OM4008: Java EE 6 resources have already been backed up to the specified directory. dir={0}

Variable Information

{0}: Directory specified in the -d option

Explanation

The 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 resources under the specified directory or move them.

ERROR: ISJE6_OM4009: There are no Java EE 6 resources in the specified directory. dir={0}

Variable Information

{0}: Directory specified in the -d option

Explanation

There are no resources in the specified directory.

System Action

Processing is interrupted.

User Action

Specify the directory that the resources were backed up in the -d option.

INFO: ISJE6_OM4011: Extraction of Java EE 6 investigation data has started.

Explanation

Extraction of investigation data has started.

INFO: ISJE6_OM4012: Extraction of Java EE 6 investigation data is complete.

Explanation

Extraction of investigation data ended normally.

ERROR: ISJE6_OM4013: Extraction of Java EE 6 investigation data ended abnormally.

Explanation

Extraction of 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: ISJE6_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

- For file {0}, check if read privileges were set for the user who executed the command.
- Check in the parent directory of {1} whether write privileges were set for the user who executed the command.
- Check if there is sufficient disk space.
- Shorten the backup destination directory name, and execute the command again.
- Based on Detail information {2}, remove the cause of the error.
- **Windows32/64**
If the iscollectinfo command is executed while the process is running, a message informing you that a file is locked may be output in {2}. If {0} is one of the following files, ignore this message.
 - Files used by the PCMI service
 - server.start
 - .pcmi_lock
 - instance-trace-0.log.lck
 - Files for locking each type of log file
 - server.log.lock

- server_access_log.txt.lock

- **Windows32/64**

Check if programs such as antivirus software and text editors have locked the file.

ERROR: ISJE6_OM4020: Java EE 6 investigation data already exists. {0}

Variable Information

{0}: Directory specified in the -d option

Explanation

The 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 investigation data under the specified directory or move them.

ERROR: ISJE6_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 backup command, shorten the length of the backup destination path, and then reexecute the backup command.

If the problem persists, collect investigation information using the iscollectinfo command and [Before Contacting a Systems Engineer](#).

- 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: ISJE6_OM4022: Environment variable does not exists. name={0}

ERROR: ISJE6_OM4022: Environment Variable {0} is not configured.

Variable Information

{0}: Environment variable name

Explanation

The environment variable is not set.

System Action

Processing is interrupted.

User Action

- If the environment variable {0} is one of the following, the Java EE 6 operating environment may be corrupt. Check if the Java EE 6 common directory and the Java EE 6 installation directory exist.
 - AS_JAVA
 - AS_JAVAAEE6_SHARED_DIR
 - AS_DERBY_INSTALL
 - AS_INSTALL
 - JAVAAEE6_INSTALL
- A failure to restore once can lead to this message being output and the restore process failing again. In this case, after reinstalling Java EE 6 and restoring the environment, execute the restore command again.

ERROR: ISJE6_OM4038: Message Queue Broker is running.

Explanation

The message broker is running.

System Action

Processing is interrupted.

User Action

Stop the message broker.

ERROR: ISJE6_OM4045: System directory does not exist. path={0}

Variable Information

{0}: Copy source file path name

Explanation

Unable to find the directory that constitutes the product.

System Action

Processing is interrupted.

User Action

Reinstall this product.

WARNING: ISJE6_OM4046: {0} does not exist.

Variable Information

{0}: Directory type

Explanation

Unable to find the target directory for data collection.

System Action

Processing is continued.

User Action

This implies that if {0} is a Java EE 6 shared directory, the Java EE 6 common directory cannot be found, and therefore the Java EE 6 common directory data is not collected.

Check if the Java EE 6 common directory exists.

INFO: ISJE6_OM4047: File name is changed to avoid overriding. src={0} dest={1} detail={2}

Variable Information

{0}: Copy source file path name

{1}: Copy destination file path name

{2}: Detail information

Explanation

A file with the same name already exists, therefore it is renamed and then the data is collected.

System Action

Processing is continued.

User Action

When you collect the data in {0} and a file with the same file name already exists in the copy destination, {0} is renamed to {1}.

This message may be output if the log output directory is changed.

ERROR: ISJE6_OM4048: PCMI service is running.

Explanation

The PCMI service is running.

System Action

Processing is interrupted.

User Action

If the following services or processes are running, stop them:

- PCMI service
- Interstage Java EE 6 DAS service
- IJServer cluster

ERROR: ISJE6_OM4049: The specified directory is invalid. dir={0}

Variable Information

{0}: Directory specified in the -d option

Explanation

The specified directory is not appropriate.

System Action

Processing is interrupted.

User Action

The Interstage Java EE 6 installation directory or the Java EE 6 common directory and their subdirectories cannot be specified in the -d option. Specify a different directory.

ERROR: ISJE6_OM4050: Unable to check running services. code={0}

Variable Information

{0}: Internal information

Explanation

Failed to check the service status.

System Action

Processing is interrupted.

User Action

- If the following services or processes are running, stop them:

- PCMI service
- Interstage Java EE 6 DAS service
- IJServer cluster
- message broker

- **Solaris32/64** **Linux32/64**

If this message is output when the ij6restore command is executed, ensure that the same user exists in the restore or import destination as for when the backup was performed.

Additionally, after executing the ij6setoperatorid command, reexecute the ij6restore command and check if the problem is resolved.

If the problem persists, collect investigation information using the iscollectinfo command and [Before Contacting a Systems Engineer](#).

10.30.6 OM5000 to OM5099

ERROR: ISJEE_OM5001: Failed to get the instance install path of PCMI service. PCMI service is not used. class={0}.

Variable Information

{0}: Class name

Explanation

Failed to retrieve the installation path of the PCMI instance, so the PCMI service cannot be used.

System Action

Processing is continued.

User Action

The JVM option "-Dcom.fujitsu.interstage.pcmi.instancePath=\${AS_JAVAEE6_SHARED_DIR}/pcmi/isje6", which is used in the Java EE 6 operating environment, has been deleted. Add this JVM option to the Interstage Java EE 6 DAS service or the IJServer cluster. For details on the JVM options defined by default, refer to "7.7.14 Java VM Definition Items".

ERROR: ISJEE_OM5002: Failed to send a notification that process named {0} is started. PCMI Error Code={1}.

Variable Information

{0}: Server instance name

{1}: Error information

Explanation

Failed to communicate with the PCMI service.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Take the action indicated by the message output before and after this message.
- Take the action indicated by the message output to the event log (Windows(R)) or the system log (Solaris/Linux), and investigate the cause of the failure.

If the problem persists, collect investigation information using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

INFO: ISJEE_OM5003: Java management agent started.

Explanation

Java management agent started.

10.30.7 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.31 Messages that Contain "ORBTPOOL" in the Message ID

10.31.1 ORBTPOOL00000 to ORBTPOOL00099

ORBTPOOL00007: Worker thread {0} caught throwable while executing work.

Variable Information

{0}: Thread information

Explanation

Worker thread {0} caught an exception.

System Action

An exception is posted to the application.

User Action

This message may be output if the Interstage Java EE 6 DAS service is stopped when the application has been deployed. There will be no impact on operations, so the message can be ignored.

10.32 Messages that Contain "PCMI" in the Message ID

10.32.1 PCMI0000 to PCMI0099

INFO: PCMI0000: The {0} command was processed normally.: INSTANCE={1}

Variable Information

{0}: Command name

{1}: PCMI instance directory path

Explanation

The command {0} terminated normally.

ERROR: PCMI0001: The {0} command was failed.: INSTANCE={1} POS={2} DETAIL={3}

Variable Information

{0}: Command name

{1}: PCMI instance directory path

{2}: Error information

{3}: System error number

Explanation

The command {0} failed.

System Action

Processing is interrupted.

User Action

If a message displaying the cause has been output before this message, take the action indicated by that message.

If a message displaying the cause has not been output before this message, take the action indicated by the message output to the event log (Windows(R)) or the system log (Solaris/Linux) before this message and investigate the cause of command execution failure.

ERROR: PCMI0002: Too many operands were specified.

Explanation

There are too many operands.

System Action

Processing is interrupted.

User Action

Specify the correct operand in the command, and then reexecute the command.

ERROR: PCMI0003: Operand is not specified.

Explanation

Operand is not specified.

System Action

Processing is interrupted.

User Action

Specify the correct operand in the command, and then reexecute the command.

ERROR: PCMI0004: Command parameter contains an error.

Explanation

The command parameter is incorrect.

System Action

Processing is interrupted.

User Action

Specify the correct parameter in the command, and then reexecute the command.

ERROR: PCMI0005: PCMI instance directory does not exist.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

The PCMI instance directory {0} does not exist.

System Action

Processing is interrupted.

User Action

Specify the PCMI instance directory that exists, and then reexecute the command.

ERROR: PCMI0006: PCMI service does not exist in the directory.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

The PCMI service is not registered in the specified instance directory {0}.

The structure of the PCMI instance directory {0} may be corrupted.

System Action

Processing is interrupted.

User Action

If this message is output during installation, perform the installation again.

In all other cases, or if the problem is still not resolved despite taking the above action, collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

ERROR: PCMI0007: PCMI service is being created in the directory.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

The registration of the PCMI service is being processed.

System Action

Processing is interrupted.

User Action

Install or uninstall, again.

If this error message continues to occur, collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

ERROR: PCMI0008: An internal error occurred.: INSTANCE={0} POS={1} DETAIL={2}

Variable Information

{0}: PCMI instance directory path

{1}: Error information

{2}: System error number

Explanation

An internal error occurred.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- If a message displaying the cause has been output before this message, take the action indicated by that message.
- Make a note of System error number {2} that is output, and then notify the system administrator.

If this error message continues to occur, collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

ERROR: PCMI0009: A system error occurred.: INSTANCE={0} POS={1} DETAIL={2}

Variable Information

{0}: PCMI instance directory path

{1}: Error information

{2}: System error number

Explanation

A system error occurred.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- If a message displaying the cause has been output before this message, take the action indicated by that message.
- Check Error information {1} and System error number {2} that are output, refer to the following table, and then take the action indicated by Error information {1} and System error number {2}.

| Error information {1} | System error number {2} | Explanation/Action |
|---|--------------------------|---|
| - | [8,12,14] | There may be insufficient memory. Close unnecessary applications, and then reexecute the command. |
| [102,105,201] | - | There may not be enough free space for the device. Secure free space for the device, and then reexecute the command. |
| - | [4,28] | |
| Windows32/64 [30103] [30109] | Windows32/64 - | There are many service processes, so the desktop heap may have depleted causing an error in the PCMI service processing. If the desktop heap has depleted, extend the desktop heap. |
| All other cases | | Make a note of Error information {1} and System error number {2}, and then notify the system administrator. |

If this error message continues to occur, collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

ERROR: PCMI0010: A condition exists that the command cannot be executed.: INSTANCE={0}**Variable Information**

{0}: PCMI instance directory path

Explanation

The command cannot be executed. A process that cannot be executed at the same time may have been executed.

System Action

Processing is interrupted.

User Action

Wait for a while, and then reexecute the command.

INFO: PCMI0011: PCMI service has started.: INSTANCE={0}**Variable Information**

{0}: PCMI instance directory path

Explanation

The PCMI service has started.

INFO: PCMI0012: PCMI service has stopped.: INSTANCE={0}**Variable Information**

{0}: PCMI instance directory path

Explanation

The PCMI service has stopped.

ERROR: PCMI0013: PCMI service cannot be started.: INSTANCE={0}**Variable Information**

{0}: PCMI instance directory path

Explanation

The PCMI service cannot be started.

System Action

Processing is interrupted.

User Action

If a message displaying the cause has been output before this message, take the action indicated by that message.

If a message displaying the cause has not been output before this message, take the action indicated by the message output to the event log (Windows(R)) or the system log (Solaris/Linux) before this message and investigate the cause of command execution failure.

ERROR: PCMI0014: PCMI service cannot be stopped.: INSTANCE={0}**Variable Information**

{0}: PCMI instance directory path

Explanation

The PCMI service cannot be stopped.

System Action

Processing is interrupted.

User Action

If a message displaying the cause has been output before this message, take the action indicated by that message.

If a message displaying the cause has not been output before this message, take the action indicated by the message output to the event log (Windows(R)) or the system log (Solaris/Linux) before this message and investigate the cause of command execution failure.

ERROR: PCMI0015: An error occurred while getting PCMI service status.: INSTANCE={0} DETAIL={1}

Variable Information

{0}: PCMI instance directory path

{1}: System error number

Explanation

An error occurred while retrieving the PCMI status, therefore the status could not be obtained successfully. The PCMI service may have stopped responding.

System Action

Processing is interrupted.

User Action

If a message displaying the cause has been output before this message, take the action indicated by that message.

If a message displaying the cause has not been output before this message, take the action indicated by the message output to the event log (Windows(R)) or the system log (Solaris/Linux) before this message and investigate the cause of command execution failure.

ERROR: PCMI0016: The directory is not empty.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

The specified PCMI instance directory {0} is not empty.

System Action

Processing is interrupted.

User Action

If this message is output during installation, empty the PCMI instance directory {0}, and then install again.

ERROR: PCMI0018: PCMI service is started.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

The PCMI service has started.

System Action

Processing is interrupted.

User Action

If this message is output during uninstallation, check the status of the PCMI service. If the PCMI service is running, stop the PCMI service and then perform the uninstallation again.

ERROR: PCMI0019: The pcminame is used.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

The PCMI service name is already being used.

If the uninstallation was performed before this operation, unnecessary resources may still exist.

System Action

Processing is interrupted.

User Action

Delete unnecessary resources using the following procedure, and then install again.

Windows32/64

If "Interstage PCMI(isje6)" still exists among the services, execute the sc command as follows to remove the "Interstage PCMI(isje6)" service:

```
sc delete "Interstage PCMI(isje6)"
```

Solaris32/64

If the following files exist, remove them using the rm command:

```
/etc/rc0.d/K00FJSVpcmiisje6  
/etc/rc2.d/S99FJSVpcmiisje6
```

Linux32/64

If the following files exist, remove them using the rm command:

```
/etc/rc.d/init.d/FJSVpcmiisje6  
/etc/rc.d/rc2.d/S99FJSVpcmiisje6  
/etc/rc.d/rc3.d/S99FJSVpcmiisje6  
/etc/rc.d/rc4.d/S99FJSVpcmiisje6  
/etc/rc.d/rc5.d/S99FJSVpcmiisje6  
/etc/rc.d/rc0.d/K00FJSVpcmiisje6  
/etc/rc.d/rc1.d/K00FJSVpcmiisje6  
/etc/rc.d/rc6.d/K00FJSVpcmiisje6
```

WARNING: PCMI0020: PCMI service has already been set up.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

Automatic startup has already been configured for the PCMI service.

System Action

Processing is continued.

User Action

If this message is output during installation, empty the PCMI instance directory {0}, and then install again.

WARNING: PCMI0021: PCMI service has not been set up.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

Automatic startup has not been configured for the PCMI service. Unnecessary resources may still exist.

System Action

Processing is continued.

User Action

Delete unnecessary resources using the following procedure, and then install again.

Windows32/64

If "Interstage PCMI(isje6)" still exists among the services, execute the sc command as follows to remove the "Interstage PCMI(isje6)" service:

```
sc delete "Interstage PCMI(isje6)"
```

Solaris32/64

If the following files exist, remove them using the rm command:

```
/etc/rc0.d/K00FJSVpcmiisje6  
/etc/rc2.d/S99FJSVpcmiisje6
```

Linux32/64

If the following files exist, remove them using the rm command:

```
/etc/rc.d/init.d/FJSVpcmiisje6  
/etc/rc.d/rc2.d/S99FJSVpcmiisje6  
/etc/rc.d/rc3.d/S99FJSVpcmiisje6  
/etc/rc.d/rc4.d/S99FJSVpcmiisje6  
/etc/rc.d/rc5.d/S99FJSVpcmiisje6  
/etc/rc.d/rc0.d/K00FJSVpcmiisje6  
/etc/rc.d/rc1.d/K00FJSVpcmiisje6  
/etc/rc.d/rc6.d/K00FJSVpcmiisje6
```

ERROR: PCMI0022: Required package is not installed.

Explanation

Java SE 7 is not installed.

System Action

Processing is interrupted.

User Action

Install Java SE 7, and then reexecute the command.

ERROR: PCMI0023: Does not have the authority to execute a command.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

A command was executed without an appropriate permission.

System Action

Processing is interrupted.

User Action

Reexecute the command as a user with privileges to execute the command.

ERROR: PCMI0024: PCMI service is not running.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

The PCMI service is not running.

System Action

Processing is interrupted.

User Action

Start the PCMI service, and then reexecute the command.

ERROR: PCMI0025: An error occurred in the display of the list of process states.: INSTANCE={0} DETAIL={1}

Variable Information

{0}: PCMI instance directory path

{1}: Detail code

Explanation

An error occurred while the list of process states managed by the PCMI service was being displayed, therefore the process states could not be obtained.

System Action

Processing is interrupted.

User Action

If Detail code {1} is "1100", take one of the following actions:

- The stop processing for the PCMI service may be in progress. Reexecute the command.

- **Windows32/64**

Command execution privileges may not have been configured for the user that executed the command. Check the user privileges. If command execution privileges have not been configured for the user, reexecute the command as a user with command execution privileges.

If this message continues to be output despite taking the above action, or Detail code {1} is a code other than the one shown above, collect the problem investigation data using the iscollectinfo command and [Before Contacting a Systems Engineer](#).

ERROR: PCMI0026: Failed to get the common Java information.

Explanation

Failed to obtain the common Java information.

System Action

Processing is interrupted.

User Action

Collect the problem investigation data using the iscollectinfo command and [Before Contacting a Systems Engineer](#).

**ERROR: PCMI0027: The evaluation period passed.
Interstage Application Server cannot be used. (Interstage PCMI)
Please buy the product version when continuously using it.**

Explanation

The evaluation period has expired.

System Action

Processing is interrupted.

User Action

Purchase the product.

ERROR: PCMI0028: PCMI service already has started.

Explanation

The PCMI service has already started.

System Action

Processing is interrupted.

User Action

Stop the PCMI service, and then reexecute the command.

ERROR: PCMI0029: PCMI service already has stopped.

Explanation

The PCMI service has already stopped.

System Action

Processing is interrupted.

User Action

Check if the PCMI service to be stopped is running.

10.32.2 PCMI1000 to PCMI1099

INFO: PCMI1000: The PCMI service has started.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

The PCMI service has started.

INFO: PCMI1001: The PCMI service has stopped.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

The PCMI service has stopped.

INFO: PCMI1002: Process was started up.: INSTANCE={0} ID={1} ADAPTER={2}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

Explanation

The server instance {1} has started.

ERROR: PCMI1003: Process unable to start.: INSTANCE={0} ID={1} ADAPTER={2}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

Explanation

Failed to start the server instance {1}.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- If another message has been output at the same time as this message, take the action indicated by that message.
- If a message has been output to the event log (Windows(R)) or the system log (Solaris/Linux) before this message, take the action indicated by that message and investigate the cause of server instance startup failure.

ERROR: PCMI1005: Specified process is already running.: INSTANCE={0} ID={1} ADAPTER={2}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

Explanation

The specified server instance {1} is already running.

System Action

Processing is interrupted.

User Action

Check the status of the specified server instance.

ERROR: PCMI1006: The PCMI service has already started.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

A PCMI service with the same name has already started.

System Action

Processing is interrupted.

User Action

Check if the PCMI instance directory path {0} is correct. If incorrect, specify the correct path and then reexecute the command.

ERROR: PCMI1007: The PCMI service cannot be started.: INSTANCE={0} DETAIL={1}

Variable Information

{0}: PCMI instance directory path

{1}: Detail information

Explanation

The PCMI service cannot be started.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Check Detail information {1} that is output, remove the cause of the error, and then reexecute the command.
- If a message has been output to the event log (Windows(R)) or the system log (Solaris/Linux) before this message, take the action indicated by that message and investigate the cause of server instance startup failure.

If this error message continues to occur, make a note of Detail information {1}, collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

ERROR: PCMI1008: Timed out. The start hook was interrupted.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

The exit function was used to execute the startup script when the PCMI service starts, and although the startup script started, its execution did not complete. It may be taking a long time to execute the startup script that has been defined.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- If there are processes that are not required by the startup script, delete those unnecessary processes and then reexecute the command.
- Execute the startup script after the PCMI service has started, instead of executing it using the exit function when the PCMI service starts.



See

.....
For details on the exit function when the PCMI service starts, refer to "[4.2.6 Exit Function during Service Startup/Stop](#)".
.....

ERROR: PCMI1009: The PCMI service cannot be started.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

The PCMI service cannot be started.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- If another message has been output at the same time as this message, take the action indicated by that message.
- If a message has been output to the event log (Windows(R)) or the system log (Solaris/Linux) before this message, take the action indicated by that message and investigate the cause of server instance startup failure.

If this error message continues to occur, collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

WARNING: PCMI1010: The shutdown time of PCMI service exceeded the time threshold.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

A timeout has occurred during the processing to stop the PCMI service.

System Action

If the service instance is running, the processing for these is interrupted and the PCMI service is stopped.

User Action

If this message is output frequently, configure the stop timeout setting for the PCMI service so that there is enough time.

Additionally, it may be taking a long time to execute the stop script that has been defined. Check the stop script, and delete any unnecessary processing.

ERROR: PCMI1011: The PCMI service cannot be started.

Explanation

The PCMI service cannot be started.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- If another message has been output at the same time as this message, take the action indicated by that message.
- If a message has been output to the event log (Windows(R)) or the system log (Solaris/Linux) before this message, take the action indicated by that message and investigate the cause of server instance startup failure.

If this error message continues to occur, collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

ERROR: PCMI1012: An error occurred while getting PCMI service status.: INSTANCE={0} DETAIL={1}

Variable Information

{0}: PCMI instance directory path

{1}: System error number

Explanation

An error occurred while retrieving the PCMI status, therefore the status could not be obtained successfully. The PCMI service may have stopped responding.

System Action

Processing is interrupted.

User Action

Wait for a while, and then check the PCMI service status using the `pcmistat` command.

When the `pcmistat` command is executed, if "unknown" is displayed for the PCMI service status and this problem is still not resolved, check the message output to the event log (Windows(R)) or the system log (Solaris/Linux) before this message and take the action indicated by that message.

ERROR: PCMI1013: PCMI root directory does not exist.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

The specified PCMI instance directory {0} does not exist.

System Action

Processing is interrupted.

User Action

Specify the PCMI instance directory that exists, and then reexecute the command.

ERROR: PCMI1014: A profile does not exist.: FILE={0}

Variable Information

{0}: PCMI profile path

Explanation

The specified PCMI profile {0} does not exist.

System Action

Processing is interrupted.

User Action

Specify the PCMI profile that exists, and then reexecute the command.

ERROR: PCMI1015: Failed to read profile.: FILE={0}

Variable Information

{0}: PCMI profile path

Explanation

Failed to read the PCMI profile {0}.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Check if appropriate privileges have been configured for the PCMI profile {0}. If not, configure them.
- Check if the PCMI profile {0} character encoding and the storage directory are correct. For details, refer to "[6.2 PCMI Service Tuning](#)" and "[6.2.1 Changing the PCMI Profile](#)".
- Check if the content defined for the PCMI profile {0} (such as definition item names, tags, and settings values) is correct. If not, configure the correct content. For details on the PCMI profile definition items, refer to "[7.1 PCMI Service Definition Items](#)".

If this error message continues to occur, collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

ERROR: PCMI1016: Invalid value.: DETAIL={0}

Variable Information

{0}: Detail information

Explanation

The value specified for the PCMI profile definition item is incorrect.

System Action

Processing is interrupted.

User Action

Check the value specified for the PCMI profile definition item. Correct this value, and then reexecute the command.



See

.....
For details on the PCMI profile definition items, refer to "[7.1 PCMI Service Definition Items](#)".
.....

ERROR: PCMI1022: The start hook has terminated abnormally.: INSTANCE={0} DETAIL={1}

Variable Information

{0}: PCMI instance directory path

{1}: Detail information

Explanation

The processing of the startup script executed using the exit function when the PCMI service starts has terminated abnormally.

System Action

Processing is interrupted.

User Action

Check Detail information {1} that is output, refer to the following table, and then and take the action indicated.

| Detail information {1} | Variable Information in Detail information {1} | Explanation/Action |
|----------------------------|--|---|
| command not found. [%s] | [%s]: Startup script path | The startup script specified in the exit function definition file does not exist. |

| Detail information {1} | Variable Information in Detail information {1} | Explanation/Action |
|---|--|---|
| | | Check the startup script specified in the exit function definition file. |
| Failed to execute command. [%s] [%d] | [%s]: Startup script path [%d]: Startup script return value | <p>If the return value of the startup script is a numeric value other than "0", it indicates that the startup script has terminated abnormally. Investigate the cause of abnormal termination of the startup script processing. Additionally, refer to "4.2.6.2 Script Files Executed in Exit Functions" and check if the content of the script file is correct.</p> <p>If the return value of the startup script is "-", it indicates that the startup script could not be executed because of problems, such as there were no startup script execution permissions. Ensure that there are no problems, such as with the startup script access privileges.</p> <p>If this error message continues to occur, collect the problem investigation data using the iscollectinfo command and Before Contacting a Systems Engineer.</p> |
| All other cases | | <p>Investigate the cause of abnormal termination of the startup script processing, remove the cause, and then reexecute the command. For details on the exit function when the PCMI service starts, refer to "4.2.6 Exit Function during Service Startup/Stop".</p> <p>If this error message continues to occur, collect the problem investigation data using the iscollectinfo command and Before Contacting a Systems Engineer.</p> |

WARNING: PCMI1024: The stop hook has terminated abnormally.: INSTANCE={0} DETAIL={1}

Variable Information

{0}: PCMI instance directory path

{1}: Detail information

Explanation

The processing of the stop script executed using the exit function when the PCMI service stops has terminated abnormally.

System Action

Processing is continued.

User Action

Check Detail information {1} that is output, refer to the following table, and then take the action indicated.

| Detail information {1} | Variable Information in Detail information {1} | Explanation/Action |
|---|--|--|
| command not found. [%s] | [%s]: Stop script path | <p>The stop script specified in the exit function definition file does not exist.</p> <p>Check the stop script specified in the exit function definition file.</p> |
| Failed to execute command. [%s] [%d] | [%s]: Stop script path [%d]: Stop script return value | <p>If the return value of the stop script is a numeric value other than "0", it indicates that the stop script has terminated abnormally. Investigate the cause of abnormal termination of the stop script processing. Additionally, refer to "4.2.6.2</p> |

| Detail information {1} | Variable Information in Detail information {1} | Explanation/Action |
|------------------------|--|---|
| | | <p>Script Files Executed in Exit Functions" and check if the content of the script file is correct.</p> <p>If the return value of the stop script is "-", it indicates that the stop script could not be executed because of problems, such as there were no stop script execution permissions. Ensure that there are no problems, such as with the stop script access privileges.</p> <p>If this error message continues to occur, collect the problem investigation data using the <code>iscollectinfo</code> command and Before Contacting a Systems Engineer.</p> |
| All other cases | | <p>Investigate the cause of abnormal termination of the stop script processing, and remove it. For details on the exit function when the PCMI service stops, refer to "4.2.6 Exit Function during Service Startup/Stop".</p> <p>If this error message continues to occur, collect the problem investigation data using the <code>iscollectinfo</code> command and Before Contacting a Systems Engineer.</p> |

WARNING: PCMI1029: Internal error occurred while stopping the PCMI service.: INSTANCE={0}

Variable Information

{0}: PCMI instance directory path

Explanation

Internal error occurred while stopping the PCMI service.

System Action

Processing is continued.

User Action

Collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

ERROR: PCMI1030: The process terminated abnormally during startup.: INSTANCE={0} ID={1} ADAPTER={2} PID={3}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

{3}: Process ID

 **Note**

When Process ID {3} is "unknown", the process ID cannot be obtained because of one of the following causes:

- The Java VM option specified when starting the process is incorrect.
- The port used for debugging the server instance is duplicated with the port of another server instance or application.
- The process was forcibly stopped by the user or another application.
- Failure to reference resources under the directory: <PCMI instance directory>/work

- The server instance failed to start, because the desktop heap has depleted.
-

Explanation

The server instance {1} terminated abnormally during start processing.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Check the information output to the server instance server log (server.log) and the Java VM log (console.log), and investigate the cause of abnormal termination.
- If a message displaying a Java VM error is output, investigate the cause of abnormal termination.

Windows32/64

There are many service processes, so the desktop heap may have depleted causing an error in the server instance start processing. If the desktop heap has depleted, extend the desktop heap.

If this error message continues to occur, make a note of the error information in this message, and then collect the problem investigation data using the iscollectinfo command and [Before Contacting a Systems Engineer](#).

INFO: PCMI1031: Process was stopped.: INSTANCE={0} ID={1} ADAPTER={2}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

Explanation

The server instance {1} has stopped.

ERROR: PCMI1032: Process is not started.: INSTANCE={0} ID={1} ADAPTER={2}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

Explanation

The server instance {1} is not running.

System Action

Processing is interrupted.

User Action

Start the server instance, and then reexecute the operation.

ERROR: PCMI1033: The other operation is already running. INSTANCE={0} ID={1} ADAPTER={2} OPERATION={3}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

{3}: Operation name

Explanation

Another operation is running for a server instance {1} with the same name, therefore the operation failed.

For the operation that is running, one of the following is output for the operation {3}:

- When the server instance is running: "START"
- When the server instance is not running, or the PCMI internal processing is in progress for the server instance that has terminated abnormally: "STOP"

System Action

Processing is interrupted.

User Action

Wait for the operation that is running to complete, and then reexecute the operation.

ERROR: PCMI1034: An internal error occurred in PCMI service.

Explanation

An internal error occurred in the PCMI service.

System Action

Processing is interrupted.

User Action

Check the message output to the event log (Windows(R)) or the system log (Solaris/Linux) before this message, and take the action indicated by that message.

If this error message continues to occur, collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

ERROR: PCMI1035: Communication error occurred.: PROTOCOLID={0} REASON={1}

Variable Information

{0}: Internal information

{1}: Reason

Explanation

Communication error occurred.

System Action

The communication processing that failed is discarded. If this error occurs on startup, the processing is interrupted.

User Action

Check Internal information {0} and Reason {1} that are output, and remove the cause of the failure.

ERROR: PCMI1036: Failed to read communication environment definition file.: FILE={0}

Variable Information

{0}: Communication environment definition file path

Explanation

Failed to read the communication environment definition file {0}.

System Action

Processing is interrupted.

User Action

Collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

ERROR: PCMI1037: Communication environment definition file contains an error.: PROTOCOLID={0} REASON={1}

Variable Information

{0}: Internal information

{1}: Reason

Explanation

The communication environment definition file is incorrect.

System Action

The PCMI service is stopped.

User Action

Collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

ERROR: PCMI1041: Operation was canceled.: INSTANCE={0} ID={1} ADAPTER={2}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

Explanation

The PCMI service was stopped, therefore the operation for the server instance {1} was canceled.

System Action

Processing is interrupted.

User Action

Start the PCMI service, and then reexecute the operation for the server instance.

If this error message continues to occur, collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

ERROR: PCMI1042: Process creation failed.: INSTANCE={0} ID={1} ADAPTER={2}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

Explanation

An error occurred during process generation.

System Action

Processing is interrupted.

User Action

Restart the server instance.

If the server instance is restarted but the problem is still not resolved, collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

ERROR: PCMI1043: Error occurred during startup of process.: INSTANCE={0} ID={1} ADAPTER={2} PID={3}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

{3}: Process ID

Explanation

An error occurred during process start processing.

System Action

Processing is interrupted.

User Action

Restart the server instance.

If the server instance is restarted but the problem is still not resolved, collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

WARNING: PCMI1045: Abnormality occurred by the salvage procedure after the process had stopped.: INSTANCE={0} ID={1} ADAPTER={2} DETAIL={3}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

{3}: Detail information

Explanation

An error occurred during collection processing after the process stopped.

System Action

Processing is continued.

User Action

If the operation to stop the server instance {1} stops responding, delete the file that saves the server instance {1} process ID. For details on the file that saves the process ID, refer to "[B.1 Interstage Java EE 6 DAS Service File Configuration](#)".

ERROR: PCMI1047: Abnormality occurred by the collection of the process information.: DETAIL={0}

Variable Information

{0}: Detail information

Explanation

An error occurred during the processing of process information collection.

System Action

Processing is continued.

User Action

Check Detail information {0} that is output, refer to the following table, and then take the action indicated.

| Detail information {0} | Action |
|-------------------------|---|
| close:Error information | Restart the server instance. |
| rename | |
| write:Error information | |
| analyse | Collect the problem investigation data using the iscollectinfo command and Before Contacting a Systems Engineer . |
| environment | |

WARNING: PCMI1051: Unable to create or write monitoring information file.: PATH={0}

Variable Information

{0}: start.info file path

Explanation

Failed to create or write to the start.info file {0}. No monitoring information is output to the start.info file.

System Action

Processing is continued.

User Action

Check the value defined in the PCMI profile to check the monitoring information definition.

ERROR: PCMI1052: An I/O error occurred.: PATH={0}

Variable Information

{0}: File path

Explanation

An I/O error occurred.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Check if the disk device where the file {0} is saved is working correctly.
- Check if the file {0} has been opened by another program. If it has, close the file {0}.

10.32.3 PCMI1100 to PCMI1199

WARNING: PCMI1100: Specified profile does not exist. Default values will be used.: ID={0}

Variable Information

{0}: Server instance name

Explanation

The PCMI profile has not been specified in the protocol, and the default profile stored when the installation was performed does not exist, therefore the default value is used for operations.

System Action

The process is started and monitored using the default value.

User Action

For details on the default values of the PCMI profile definition items, refer to "[7.1 PCMI Service Definition Items](#)".

To set values, other than the default values, for the PCMI profile definition items, check the PCMI profile, configure the correct values, and then start the Interstage Java EE 6 DAS service or the IJServer cluster.

ERROR: PCMI1101: The shutdown time of process exceeded the process monitoring time.: INSTANCE={0} ID={1} ADAPTER={2} PID={3}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

{3}: Process ID

Explanation

The processing to stop the process did not complete within the process monitoring time.

System Action

The application process is stopped by force.

User Action

Take one of the following actions:

- Check the log file, and investigate the cause of the long time required to stop the application process.
- Check the thread dump output to the Interstage Java EE 6 DAS service or the IJServer cluster Java VM log (console.log), and investigate if there is a problem in the application.

ERROR: PCMI1102: The startup time of process exceeded the process monitoring time.: INSTANCE={0} ID={1} ADAPTER={2} PID={3}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

{3}: Process ID



Note

When Process ID {3} is "unknown", the process ID cannot be obtained because of one of the following causes:

- The Java VM option specified when starting the process is incorrect.
 - The port used for debugging of the server instance is duplicated with the port of another server instance or application.
 - The process was forcibly stopped by the user or another application.
 - Failure to reference resources under the directory: <PCMI instance directory>/work
-

Explanation

The processing to start the process did not complete within the process monitoring time.

System Action

The application process is stopped by force.

User Action

Take one of the following actions, and then reexecute processing:

- Reestimate the monitoring time after considering the system performance and the number of server instances. Then, change the IJServer cluster startup wait time.
- In the application program, investigate if substantial time configured for the IJServer cluster startup wait time setting could be the cause of the error.
- Check the thread dump output to the Interstage Java EE 6 DAS service or the IJServer cluster Java VM log (console.log), and investigate if there is a problem in the application.

ERROR: PCMI1103: The process has stopped.: ID={0} PID={1}

Variable Information

{0}: Server instance name

{1}: Process ID

Explanation

The server application process that runs on the Interstage Java EE 6 DAS service or the IJServer cluster terminated abnormally.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- If a message has been output to the event log (Windows(R)) or the system log (Solaris/Linux) before this message, take the action indicated by that message and investigate the cause of abnormal termination of the process.
- If a message has not been output to the event log (Windows(R)) or the system log (Solaris/Linux) before this message, check the log file and investigate if there is a problem in the application.
- If the IJServer cluster has terminated abnormally, check the information output to the IJServer cluster server log (server.log) and the Java VM log (console.log) and investigate if there is a problem in the application.
- If a message showing a Java VM error is output and investigate the cause of abnormal termination.

INFO: PCMI1104: The reactivation frequency of the process was exceeded.: ID={0} PID={1}

Variable Information

{0}: Server instance name

{1}: Process ID

Explanation

The abnormal termination of the process was repeated for a fixed period following its initial abnormal termination, therefore the automatic restart of the process was stopped.

System Action

The automatic restart of the process is stopped.

User Action

Start the process manually.

WARNING: PCMI1105: The process has stopped because JavaVM ran out of memory.: ID={0} PID={1} KIND={2}

Variable Information

{0}: Server instance name

{1}: Process ID

{2}: Memory type code

Explanation



There is insufficient Java VM heap area, therefore the process stopped.


System Action

The process for which there is insufficient Java VM heap area is stopped.

User Action

If this message is output frequently, refer to the following table and change the heap area specified in the Java VM option according to the memory type code {2} that is output. For details on tuning, refer to "JDK/JRE Tuning" chapter in the Tuning Guide.

| Memory type code {2} | Action |
|----------------------------|--|
| 0 (C heap area) | <p>Reestimate the memory required to run the Interstage Java EE 6 DAS service or the IJServer cluster, and check if sufficient memory is secured.</p> <p>If it is, there may be insufficient memory to use other applications. Reestimate the memory required to run other applications on the same machine, and investigate if there is sufficient memory.</p> <p>If, as a result of the reestimation, it is confirmed that there is insufficient memory, contact the system administrator. Ask the system administrator to add the main memory or extend the swap area.</p> <p>If the Java heap area is greater than required, reduce the value set for -Xmx or -XX:MaxPermSize.</p> |
| 1 (Java heap area) | <p>After extending the maximum value of the Java heap area using the Java VM option "-Xmx", restart the IJServer cluster. For the Java heap area when OutOfMemoryError occurs, check "heap_size" in the Java VM log.</p> <p> Example</p> <p>.....</p> <p>Extending the maximum value of the Java heap area to "512 MB"</p> <p>-Xmx512m</p> <p>.....</p> <p> Note</p> <p>.....</p> <p>Even if "heap_size" in the Java VM log provides sufficient space for "max_heap_size", the heap area may be insufficient if the generated object is extremely large, or if there is no contiguous heap area. Extend the heap area in this case as well.</p> <p>.....</p> |
| 2 (Java Permanent area) | <p>After extending the maximum value of the Permanent generation area using the Java VM option "-XX:MaxPermSize", restart the IJServer cluster. For the Java Permanent area when OutOfMemoryError occurs, check "perm_size" in the Java VM log.</p> |

| Memory type code {2} | Action |
|---|--|
| |  Example Extending the maximum value of the Permanent generation area to "512 MB" -XX:MaxPermSize=512m |
| -1 (Failed to obtain the JavaVM information) | Check the value set for "heap_type" in the Java VM log to determine the memory type code, and then take action for the C heap area, the Java heap area, and the Permanent generation area above. Additionally, regarding the detail information when there is insufficient Java VM heap area, check the output information output to the IJServer cluster Java VM log, and then perform tuning. |

 **Example**

.....

Java VM log output 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)

```

.....

 **See**

.....

For details on the contents output to the OutOfMemory Log, refer to "When an EXTP4435 or ISJEE_OM1018 message is output" in the "JDK/JRE Tuning" chapter of the Tuning Guide.

.....

WARNING: PCMI1106: Application processing time exceeded monitoring time.: INSTANCE={0} ID={1} ADAPTER={2} PID={3}

Variable Information

- {0}: PCMI instance directory path
- {1}: Server instance name
- {2}: Internal information
- {3}: Process ID

Explanation

The application processing time has exceeded the monitoring time.

System Action

Application processing is continued.

User Action

If a message has been output to the event log (Windows(R)) or the system log (Solaris/Linux) immediately before this message, take the action indicated by that message and investigate the cause of time-consuming application processing.

ERROR: PCMI1107: Application processing time exceeded monitoring time.: INSTANCE={0} ID={1} ADAPTER={2} PID={3}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

{3}: Process ID

Explanation

The application processing time exceeded the monitoring time, therefore the application terminated abnormally.

System Action

The application is stopped.

User Action

If a message has been output to the event log (Windows(R)) or the system log (Solaris/Linux) immediately before this message, take the action indicated by that message and investigate the cause of time-consuming application processing.

WARNING: PCMI1108: No response time exceeded monitoring time.: INSTANCE={0} ID={1} PID={2}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Process ID

Explanation

This is the notification, which indicates that the active state monitoring time was exceeded.

System Action

Processing is continued.

User Action

If a message has been output to the event log (Windows(R)) or the system log (Solaris/Linux) immediately before this message, take the action indicated by that message and investigate the cause of response deterioration.

ERROR: PCMI1109: No response time exceeded monitoring time.: INSTANCE={0} ID={1} PID={2}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Process ID

Explanation

The notification of active state monitoring time was exceeded, therefore the server instance was stopped by force.

System Action

The server instance is stopped.

User Action

If a message has been output to the event log (Windows(R)) or the system log (Solaris/Linux) immediately before this message, take the action indicated by that message and investigate the cause of response deterioration.

WARNING: PCMI1115: Abnormality occurred by the reactivation processing after the process had stopped. INSTANCE={0} ID={1} ADAPTER={2} DETAIL={3}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

{3}: Detail information

Explanation

An error occurred during restart processing after the process stopped.

System Action

The restart processing for the process is canceled.

User Action

Check Detail information {3} that is output, and remove the cause of the failure.

If this error message continues to occur, make a note of the error information in this message and [Before Contacting a Systems Engineer](#).

WARNING: PCMI1116: The process monitoring failed.: INSTANCE={0} ID={1} ADAPTER={2}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

Explanation

The process monitoring has failed.

System Action

The process monitoring is continued after the process monitoring for the server instance {1} is skipped.

User Action

If another message has been output immediately before this message, take the action indicated by that message.

If a message has not been output immediately before this message, or this message is still output despite taking the above action, collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

ERROR: PCMI1117: Abnormality occurred by the monitoring of the process.: INSTANCE={0} ID={1} ADAPTER={2} PID={3} DETAIL={4}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

{3}: Process ID

{4}: Detail information

Explanation

An error occurred during the process monitoring of the process.

System Action

The process monitoring of the process is interrupted, and the process is stopped.

User Action

Start the server instance after deleting the file that saves the server instance {1} process ID.

If this message continues to be output despite taking the above action, collect the problem investigation data using the `iscollectinfo` command and [Before Contacting a Systems Engineer](#).

WARNING: PCMI1118: Abnormality occurred by the stop procedure.: INSTANCE={0} ID={1} ADAPTER={2} DETAIL={3}

Variable Information

{0}: PCMI instance directory path

{1}: Server instance name

{2}: Internal information

{3}: Detail information

Explanation

An error occurred during the processing to stop the process.

System Action

Processing is continued.

User Action

Not required.

10.32.4 PCMI1200 to PCMI1299

ERROR: PCMI1200: Directory deletion failed.: PATH={0}

Variable Information

{0}: Path

Explanation

Failed to delete the directory {0}.

Possible causes are as follows:

- Write privileges have not been configured for the directory or the parent directory.
- The disk has become corrupted, therefore access to the file or directory has failed.
- Due to a conflict with other processing, access to the disk is temporarily unavailable.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Check if write privileges have been configured for the directory or the parent directory.
- Check if the disk has become corrupted.
- If access to the disk is temporarily unavailable, wait for a while and then reexecute processing.

ERROR: PCMI1201: Unable to rotation the directory.: PATH={0} BACKUP_ROOT_PATH={1}**Variable Information**

{0}: Current directory path

{1}: Current directory backup destination path

Explanation

Failed to rotate the current directory {0}.

Possible causes are as follows:

- Write privileges have not been configured for the directory or the parent directory.
- The disk has become corrupted, therefore access to the file or directory has failed.
- Due to a conflict with other processing, access to the disk is temporarily unavailable.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Check if write privileges have been configured for the directory or the parent directory.
- Check if the disk has become corrupted.
- If access to the disk is temporarily unavailable, wait for a while and then reexecute processing.

ERROR: PCMI1202: Directory creation failed.: PATH={0}**Variable Information**

{0}: Path

Explanation

Failed to create the directory {0}.

Possible causes are as follows:

- Write privileges have not been configured for the directory or the parent directory.
- The disk has become corrupted, therefore access to the file or directory has failed.
- Due to a conflict with other processing, access to the disk is temporarily unavailable.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Check if write privileges have been configured for the directory or the parent directory.
- Check if the disk has become corrupted.
- If access to the disk is temporarily unavailable, wait for a while and then reexecute processing.

10.32.5 PCMI1300 to PCMI1399

INFO: PCMI1300: Log rotated successfully.: FILE={0}

Variable Information

{0}: Log file path

Explanation

Rotation of the log file {0} was successful.

WARNING: PCMI1301:Log rotation failed.: FILE={0}, REASON={1}

Variable Information

{0}: Log file path

{1}: Reason

Explanation

Rotation of the log file {0} failed for the reason in {1}.

System Action

The rotation processing is canceled, and the server instance processing is continued.

User Action

Take one of the following actions:

- If there is insufficient free disk space, secure more.
 - If access privileges have not been configured correctly for the log file to be rotated, configure these privileges.
 - If an I/O error occurred, check if the disk device where the log file is saved is running normally.
 - Check if 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.
 - If another program has opened the log file, close the log file.
 - Check if an old generation log file has been locked.
-

ERROR: PCMI1302: Failed in preparing for logging to the file.: FILE={0}, REASON={1}

Variable Information

{0}: Log file path

{1}: Reason

Explanation

Initialization of the log file {0} failed for the reason in {1}.

System Action

The log file initialization processing is canceled, and the server instance processing is continued.

User Action

Take one of the following actions:

- If there is insufficient free disk space, secure more.
- If access privileges have not been configured correctly for the log file, configure these privileges.
- If an I/O error occurred, check if the disk device where the log file is saved is running normally.
- If another program has opened the log file, close the log file.

- Ensure that the length of the log file's absolute path has not exceeded the maximum path length configured in the operating system. If it has, configure the length of the log file's absolute path so that it does not exceed the maximum path length configured in the operating system.

INFO: PCMI1303: Pending output was flushed.: FILE={0}**Variable Information**

{0}: Log file path

Explanation

A pending message was output to the log file {0}.

WARNING: PCMI1304: Something went wrong in the drainer. It will be stopped.**Explanation**

An error has occurred in the log collection thread. The log collection feature will be stopped.

System Action

The server instance processing is continued.

User Action

To continue the collection of the Java VM log, restart the server instance.

ERROR: PCMI1306: Failed in logging standard output to the file.: FILE={0}, REASON={1}**Variable Information**

{0}: Log file path

{1}: Reason

Explanation

Output to the log file {0} failed for the reason in {1}.

System Action

The server instance processing is continued.

User Action

Take one of the following actions:

- If there is insufficient free disk space, secure more.
- If an I/O error occurred, check if the disk device where the log file is saved is running normally.

ERROR: PCMI1307: Failed in initializing the trace log file.**Explanation**

Failed to initialize the trace log file.

System Action

The processing to start the PCMI service is canceled.

User Action

Specify the PCMI instance directory that exists, and then reexecute the command.

10.32.6 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.33 Messages that Contain "PER" in the Message ID

10.33.1 PER01000 to PER01099

WARNING: PER01000: Got SQLException executing statement "{0}": {1}

Variable Information

{0}: SQL statement
{1}: Exception information

Explanation

An exception occurred when the SQL statement ({0}) was executed.

System Action

Processing is continued.

User Action

Refer to the server log, and remove the cause of the error.

10.33.2 PER02100 to PER02199

INFO: PER02100: Could not load Toplink Essentials. Assuming this is an upgrade from V2. Switching Persistence Unit [{0}] to use [{1}] as JPA provider. If you intend to use Toplink Essentials, please ensure that it is visible to your application."

Variable Information

{0}: Persistence unit name
{1}: Persistence provider name

Explanation

{1} is used as the persistence provider instead of Toplink Essentials.

System Action

Processing is continued.

User Action

Not required.

10.33.3 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.34 Messages that Contain "PWC" in the Message ID

10.34.1 PWC1000 to PWC1999

PWC1220: Exception thrown by attributes event listener

Explanation

An exception was thrown by ServletContextAttributeListener.

System Action

Processing is continued.

User Action

Refer to the exception information, and correct the application.

PWC1222: Path {0} does not start with "/" and is not empty

Variable Information

{0}: Path

Explanation

PWC1222: Path {0} does not start with a "/" character

System Action

Processing is interrupted.

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 Variable Information.

PWC1223: Path {0} does not start with "/"

Variable Information

{0}: Path

Explanation

The path specified for the javax.servlet.ServletContext getResourcePaths or getResource method does not start with a forward slash ("/").

System Action

Processing is interrupted.

User Action

Correct the application so that the path specified for the javax.servlet.ServletContext getResourcePaths or getResource method starts with a forward slash ("/").

SEVERE: PWC1240: Container {0} has not been started

Variable Information

{0}: Web application name

Explanation

Failed to start the web application {0}.

System Action

Processing is continued.

User Action

Refer to the exception information that will be output after this message.

PWC1270: Exception starting filter {0}

Variable Information

{0}: Filter name

Explanation

Failed to start the filter.

System Action

Processing is continued.

User Action

Check if there are errors in the filter specified in web.xml.

PWC1277: Exception sending context destroyed event to listener instance of class {0}

Variable Information

{0}: Listener class name

Explanation

An error occurred in the call to the contextDestroyed method of the listener.

System Action

The deactivation processing of the web application is interrupted.

User Action

Follow the action advised in the exception information and any other messages to remove the cause of the error.

PWC1321: Error invoking requestInitialized method on ServletRequestListener {0}

Variable Information

{0}: ServletRequestListener name

Explanation

An exception was thrown by the requestInitialized method of ServletRequestListener.

System Action

Processing is continued.

User Action

Refer to the exception information, and correct the application.

PWC1322: Error invoking requestDestroyed method on ServletRequestListener {0}

Variable Information

{0}: ServletRequestListener name

Explanation

An exception was thrown by the requestDestroyed method of ServletRequestListener.

System Action

Processing is continued.

User Action

Refer to the exception information, and correct the application.

SEVERE: PWC1416: Invalid status code {0} for error-page mapping. HTTP error codes are defined in the range from 400-600

Variable Information

{0}: Status code

Explanation

An invalid status code has been specified in the web.xml <error-code> tag.

System Action

The specified error page cannot be used.

User Action

An invalid value was specified in the web.xml <error-code> tag. Correct web.xml.

SEVERE: PWC1420: Error invoking ServletContainerInitializer {0}

Variable Information

{0}: ServletContainerInitializer name

Explanation

An exception was thrown during the execution of the onStartUp method of ServletContainerInitializer.

System Action

Processing is interrupted. The application cannot be used.

User Action

An exception was thrown by ServletContainerInitializer. Correct the application.

PWC1421: Unable to configure mapping for servlet {0} of servlet context {1}, because URL patterns are null or empty

Variable Information

{0}: Servlet name

{1}: Context root name

Explanation

Null and empty spaces cannot be specified for servlet mapping.

System Action

Processing is interrupted. The application cannot be used.

User Action

When adding servlets using the addServlet method of ServletContext, check if null and empty spaces have been specified for servlet mapping.

PWC1422: Unable to configure {0} for servlet {1} of servlet context {2}, because this servlet context has already been initialized

Variable Information

{0}: Property to be modified
{1}: Servlet name
{2}: Context root name

Explanation

{0} cannot be modified for contexts that have been initialized.

System Action

Processing is interrupted.

User Action

Change the timing for modifying {0} during context initialization.

PWC1423: Unable to configure {0} for filter {1} of servlet context {2}, because this servlet context has already been initialized

Variable Information

{0}: Property to be modified
{1}: Filter name
{2}: Context root name

Explanation

{0} cannot be modified for contexts that have been initialized.

System Action

Processing is interrupted.

User Action

Change the timing for modifying {0} during context initialization.

PWC1424: Unable to configure mapping for filter {0} of servlet context {1}, because servlet names are null or empty

Variable Information

{0}: Filter name
{1}: Context root name

Explanation

Null and empty spaces cannot be specified for filter mapping.

System Action

Processing is interrupted. The application cannot be used.

User Action

When adding filters using the `addFilter` method of `ServletContext`, check if null and empty spaces have been specified for filter mapping.

PWC1425: Unable to configure mapping for filter {0} of servlet context {1}, because URL patterns are null or empty

Variable Information

{0}: Filter name
{1}: Context root name

Explanation

Null and empty spaces cannot be specified for filter mapping.

System Action

Processing is interrupted. The application cannot be used.

User Action

When adding filters using the `addFilter` method of `ServletContext`, check if null and empty spaces have been specified for filter mapping.

PWC1426: Unable to configure {0} session tracking cookie property for servlet context {1}, because this servlet context has already been initialized

Variable Information

{0}: `SessionCookieConfig` property
{1}: Context root

Explanation

The web application of context root {1} has already been initialized, therefore `SessionCookieConfig` property {0} cannot be changed.

User Action

Change the timing for configuring the property {0} to when the context is initialized.

Additionally, definitions related to `SessionCookie` can be specified in `cookie-config` of `web.xml`.

10.34.2 PWC2000 to PWC2999

INFO: PWC2775: Session attribute event listener threw exception

Explanation

An exception has been thrown by `HttpSessionAttributeListener`.

System Action

Processing is continued.

User Action

The application is invalid. Refer to the exception information, and remove the cause of the error.

PWC2786: removeAttribute: Session already invalidated

Explanation

The session has already been invalidated.

Cause

The removeAttribute method was called for an already invalidated session, therefore the IllegalStateException exception was thrown.

User Action

The removeAttribute method cannot be called for invalidated session instances (HttpSession instance). Check if the removeAttribute method has been called for an already invalidated session instance in the web application.

INFO: PWC2787: Session event listener threw exception

Explanation

An exception has been thrown by HttpSessionListener.

System Action

Processing is continued.

User Action

The application is invalid. Refer to the exception information, and remove the cause of the error.

10.34.3 PWC3000 to PWC3999

SEVERE: PWC3983: Coyote connector has not been started

Explanation

The HTTP listener has not been started.

System Action

Processing is continued.

User Action

The HTTP listener may have failed to start. Follow the action advised in the other messages and the exception information output to remove the cause of the error.

SEVERE: PWC3989: An exception or error occurred in the container during the request processing

Explanation

An exception or error occurred in the web container during request processing.

Cause

An exception occurred in the web container during request processing.

The stop processing for the Interstage Java EE 6 DAS service and the IJServer cluster, changes to definition items, and redeployment of applications may have been performed.

User Action

This message may be output if changes to definition items and redeployment of applications, and the stop processing for the Interstage Java EE 6 DAS service and the IJServer cluster are performed during normal operations.

If this message is output during stop processing, ignore it.

Requests accepted during stop processing will not be processed.

Refer to the message and the exception output before and after this message, and resolve the problem.

If the problem is still not resolved despite taking the above action, collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

10.34.4 PWC4000 to PWC4999

WARNING: PWC4003: Exception thrown by attributes event listener**Explanation**

An exception was thrown by ServletRequestAttributeListener.

System Action

Processing is continued.

User Action

Refer to the exception information, and correct the application.

PWC4015: Stream closed**Explanation**

The stream is already closed.

System Action

The input stream loading process will not be performed.

User Action

Data cannot be loaded into input streams that are already closed. Review the application.

PWC4016: Request.{0} is called without multipart configuration. Either add a @MultipartConfig to the servlet, or a multipart-config element to web.xml**Variable Information**

{0}: Method name

Explanation

The method {0} was called for a servlet for which the multipart has not been configured.

System Action

Processing is interrupted.

User Action

To use the file upload feature, either add the @MultipartConfig annotation to the servlet, or define it in web.xml.

10.34.5 PWC6000 to PWC6999

PWC6036: {0}: Mandatory attribute {1} missing**Variable Information**

{0}: Tag name

{1}: Attribute name

Explanation

A required attribute ({1}) has not been specified in the tag ({0}).

System Action

Request processing is interrupted.

User Action

Review jsp.

WARNING: PWC6093: Invalid value for the initParam checkInterval. Will use the default value of "0" seconds

Explanation

The check-interval property specified for jsp-config of glassfish-web.xml is incorrect, therefore 0 is used.

User Action

Review the value specified for jsp-config of glassfish-web.xml included in the web application.

PWC6117: File "{0}" not found

Variable Information

{0}: File name

Explanation

JSP or the file ({0}) referenced from JSP was not found.

User Action

Check if the file output to Variable Information {0} exists.

PWC6142: No tag "{0}" defined in tag library imported with prefix "{1}"

Variable Information

{0}: Tag name

{1}: Tag library prefix

Explanation

There is no tag ({0}) defined in the tag library ({1}).

System Action

Request processing is interrupted.

User Action

Check if the tag used in jsp is defined in the tld file.

PWC6191: Tag file directory {0} does not start with "/WEB-INF/tags"

Variable Information

{0}: Path of the directory in which the tag file is stored

Explanation

The jsp taglib directive tagdir attribute value is invalid.

System Action

Request processing is interrupted.

User Action

Specify a directory that starts with "/WEB-INF/tags" for the taglib directive tagdir attribute.

WARNING: PWC6337: Invalid value for the initParam {0}. Will use the default value of "{1}"

Variable Information

{0}: Property name

{1}: Value that is used

Explanation

The property {0} specified for jsp-config of glassfish-web.xml is incorrect, therefore value {1} is used.

User Action

Review the value specified for jsp-config of glassfish-web.xml included in the web application.

10.34.6 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.35 Messages that Contain "RAR" in the Message ID

10.35.1 RAR5000 to RAR5099

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 the Interstage Java EE 6 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 the Interstage Java EE 6 DAS service?

After performing the above checks, correct the class file or the settings and then restart the IJServer cluster or the Interstage Java EE 6 DAS service.

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 IIServer cluster or the Interstage Java EE 6 DAS service.

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 if the external resource settings are appropriate.

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 if the external resource settings information is appropriate.

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.

RAR5031:System Exception

Explanation

A system exception occurred during a resource operation.

System Action

An exception is returned to the caller.

User Action

Refer to the exception information output immediately after this message, and remove the cause of the error.

RAR5035:Unexpected exception while destroying resource from pool {0}. Exception message: {1}

Variable Information

{0}: Connection pool name
{1}: Exception information

Explanation

An exception occurred while discarding the resource.

System Action

Processing is continued.

User Action

Refer to Exception information output immediately before this message.

INFO: 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 if the DB is started. Also, check if SELECT permission to the connection validation target table has been assigned to the user who executed the connection validation.

10.35.2 RAR5100 to RAR5199

INFO: RAR5118 : isValid based validation detected invalid connection.

Explanation

Connection validation which uses isValid in validation method has detected invalid connections.

System Action

Processing is continued.

User Action

Check if the database is running and the status of the network between the database and the IJServer cluster or the Interstage Java EE 6 DAS service is normal. Refer to the database log, remove the cause of the error, and then execute again.

WARNING: RAR5199 : The JDBC driver does not support isValid method

Explanation

The current driver does not support the isValid method.

System Action

Processing is continued.

User Action

Take action using one of the following methods:

- Configure a JDBC driver that supports the isValid method.

- Change the validation method to table.

10.35.3 RAR6000 to RAR6099

RAR6000 : Invalid deployment descriptor, no connection-definition found either via ra.xml or annotations for the resource-adapter [{0}]

Variable Information

{0}: Resource adapter name

Explanation

The deployment descriptor (ra.xml) or the annotation for the resource adapter {0} is invalid.

System Action

Processing is continued.

User Action

Review the settings for ra.xml or the annotation, correct the cause of the error, and redeploy the resource adapter. In particular, if the ra.xml <resourceadapter-class> tag, the <inbound-resourceadapter> tag, and the <adminobject> tag for connector1.5 are omitted, it is recognized as being compatible with connector1.0. In this case, specify only one <connection-definition> tag.

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 if the JavaBean class of the ResourceAdapter, ManagedConnectionFactory, and ActivationSpec is handled appropriately in the RAR module. Additionally, check if the correct JavaBean class name has been specified in the resource adapter deployment descriptor (ra.xml) or annotation.

RAR6013 : Could not 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.

RAR6014 : Could not 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.

RAR6017 : Failed to get connection pool object {0} via JNDI lookup : {1}

Variable Information

{0}: Pool name of the connector connection pool

{1}: Exception information

Explanation

Use of JNDI lookup to fetch the connector connection pool failed.

System Action

Processing is continued.

User Action

Refer to Exception information output immediately after this message, remove the cause of the error, and then execute the processing again.

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 if the IJServer cluster or the Interstage Java EE 6 DAS service was started while the JMS message broker was in the stopped state.

- In other cases:

Resource adapter deployment or startup may have failed. Refer to the stack trace output before and after the error to identify the cause of the error and remove it. Then, redeploy the resource adapter and start the IJServer cluster or the Interstage Java EE 6 DAS service.

RAR6035 : Resource adapter start failed.

Variable Information

{0}: Module 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 JJServer cluster or the Interstage Java EE 6 DAS service.

10.35.4 RAR7000 to RAR7099

RAR7099: 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.

10.35.5 RAR7100 to RAR7199

INFO: RAR7114: Unable to get ClientInfo for connection : {0}

Variable Information

{0}: Detail information

Explanation

getClientInfo failed for the reason in {0}.

System Action

Processing is continued.

User Action

Refer to Detail information, and remove the cause of the error.

INFO: RAR7115: Unable to set ClientInfo for connection : {0}

Variable Information

{0}: Detail information

Explanation

setClientInfo failed for the reason in {0}.

System Action

Processing is continued.

User Action

Refer to Detail information, and remove the cause of the error.

RAR7126: Assuming destination type {0} for MDB {2} from administered object {1}

Variable Information

{0}: Destination type
{1}: Administered object
{2}: EJB application name

Explanation

The managed object {1} used by Message-driven Bean {2} is operating as the {0} type.

RAR7132: Unable to enlist the resource in transaction. Returned resource to pool. Pool name: [{0}]

Variable Information

{0}: Connection pool name

Explanation

The resource cannot be registered in 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 actions, and then execute the application again:

- Check if the database is operating correctly.
- Check if there is a problem with the connection between the database and the network.

RAR7140: Unable to set log-writer for resource-adapter [{0}] : {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 Exception information in {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.

10.35.6 RAR8000 to RAR8099

WARNING: RAR8022: Failed to get invalid connections from Managed Connection Factory {0}. Exception = {1}; Message = {2}

Variable Information

{0}: Connection pool name
{1}: Exception class name
{2}: Exception information

Explanation

An exception ({1}) occurred when the connection was obtained from the connection pool ({0}).

System Action

Processing is continued.

User Action

Refer to Exception information, and remove the cause of the error.

INFO: RAR8029: Resource [{0}] of type [{1}] is not enabled

Variable Information

{0}: Resource name

{1}: Internal information

Explanation

The resource {0} is not referenced by the Interstage Java EE 6 DAS service or the server instance to which this message is output.

System Action

Processing is continued.

User Action

The resource {0} is not used by the Interstage Java EE 6 DAS service or the server instance to which this message is output, therefore no action is required.

If it is necessary to use this resource, create the resource reference in the asadmin create-resource-ref subcommand.

This message may be output in large numbers to server.log of the Interstage Java EE 6 DAS service during application deployment, and deployment may fail. In this case, restart the Interstage Java EE 6 DAS service and redeploy the applications that failed to deploy.

RAR8054: Exception while creating an unpooled [test] connection for pool [{0}], {1}

Variable Information

{0}: Connection pool name

{1}: Exception information

Explanation

An exception was thrown during the creation of a connection for the connection pool {0}.

System Action

Processing is continued.

User Action

Refer to Exception information {1}, and remove the cause of the error.

SEVERE: RAR8059: Exception while trying to find properties of class [{0}], set log-level toFINE for more information, {1}

Variable Information

{0}: Class name

{1}: Error information

Explanation

An error ({1}) occurred when the properties of class name {0} were referenced.

System Action

Processing is continued.

User Action

Take action using one of the following methods:

- Check if the corresponding class exists.
- Check if there are access privileges for the corresponding class.

WARNING: RAR8068: Using default datasource : {0} for pool : {1}

Variable Information

{0}: Datasource class name

{1}: Connection pool name

Explanation

There is no datasource class corresponding to the specified datasource class name, therefore the default datasource name ({0}) will be used.

System Action

Processing is continued.

User Action

Take action using one of the following methods:

- Check if the specified datasource class name is correct.
- If the specified datasource class name is correct, check if the corresponding datasource class exists.

10.35.7 RAR8500 to RAR8599

SEVERE: RAR8501: Exception during endpoint activation for ra [{0}], activationSpecClass [{1}] : {2}

Variable Information

{0}: Resource adapter name

{1}: activationSpec class name

{2}: Exception information

Explanation

An exception occurred during the processing that enables the resource adapter ({0}).

System Action

Processing is interrupted.

User Action

Refer to Exception information, and remove the cause of the error.

RAR8505: Application [{0}] does not seem to have started. Skipping Inbound Recovery for the application.

Variable Information

{0}: Application name

Explanation

Not subject to transaction recovery processing.

System Action

Processing is continued.

User Action

If the lifecycle module is output to Variable Information, ignore it.

10.35.8 RAR9000 to RAR9099

RAR9033: Thread-pool [{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 if the thread pool {0} exists. Allocate an existing thread pool ID to the resource adapter and then restart the IJServer cluster or the Interstage Java EE 6 DAS service.

RAR9034: An error occurred during instantiation of the work manager for resource-adapter [{0}]

Variable Information

{0}: Exception information

Explanation

An error occurred during WorkManager initialization.

System Action

Processing is continued.

User Action

Follow the action advised in Exception information output immediately after this message to remove the cause of the error, and then reexecute processing.

10.35.9 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.36 Messages that Contain "S" in the Message ID

If a message not explained in this section was output, action must be taken according to the explanation for the message with "IJMQ_" as the message number prefix. For details, refer to "Messages that Contain "IJMQ" in the Message ID" in the Java EE Operator's Guide.

If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.37 Messages that Contain "SEC" in the Message ID

10.37.1 SEC1000 to SEC1099

INFO: SEC1001: Security Manager is ON.

Explanation

Security Manager is enabled.

System Action

Processing is continued.

User Action

Not required.

INFO: SEC1002: Security Manager is OFF.

Explanation

Security Manager is disabled.

System Action

Processing is continued.

User Action

Not required.

INFO: SEC1010: Entering Security Startup Service

Explanation

The security service will start.

System Action

Processing is continued.

User Action

Not required.

INFO: SEC1011: Security Service(s) Started Successfully

Explanation

The security service started successfully.

System Action

Processing is continued.

User Action

Not required.

10.37.2 SEC1100 to SEC1199

INFO: SEC1115: Realm [{0}] of classtype [{1}] successfully created.

Variable Information

{0}: Realm name
{1}: Class name

Explanation

The realm was created.

System Action

Processing is continued.

User Action

Not required.

INFO: SEC1117: Realm [{0}] successfully updated.

Variable Information

{0}: Realm name

Explanation

The realm was updated.

System Action

Processing is continued.

User Action

Not required.

WARNING: SEC1141: Requested jacc-provider [{0}] is not configured in domain.xml.

Variable Information

{0}: Value set for the JACC security definition

Explanation

The definition set as the JACC security definition was not found.

System Action

Processing is continued.

User Action

Set "default" as the JACC security definition. For details on this setting, refer to ["9.1.4.2 set Subcommand"](#) and ["7.7.12 Security Definition Items"](#).

WARNING: SEC1145: No policy provider defined. Will use the default JDK Policy implementation.

Explanation

The JACC policy provider definition was not found.

System Action

Processing is continued.

User Action

Set "default" as the JACC security definition. For details on this setting, refer to ["9.1.4.2 set Subcommand"](#) and ["7.7.12 Security Definition Items"](#).

10.37.3 SEC1200 to SEC1299

INFO: SEC1201: Login failed for user: {0}

Variable Information

{0}: User name

Explanation

Failed to log in.

System Action

Processing is continued.

User Action

This message is output on login authentication using PasswordValidationCallback.

Possible causes are as follows:

- The user does not exist.
Ensure that the user exists.
- The password is invalid.
Ensure that the password is valid.
- The user and the password specified in the application are invalid.
Ensure that the user and the password have been correctly specified in the application.

WARNING: SEC1202: No support to read Principals in SecretKeyCallback.

Explanation

SecretKeyCallback Principals cannot be referenced.

System Action

Processing is continued.

User Action

Ensure that the value specified in the SecretKeyCallback alias is correct.

WARNING: SEC1203: GFAuthConfigFactory unable to load Provider: {0}, exception : {1}, cause : {2}.

Variable Information

{0}: Provider name

{1}: Exception information

{2}: Cause information

Explanation

Failed to load the AuthConfigProvider implementation class.

System Action

Processing is continued.

User Action

Ensure that the AuthConfigProvider implementation class name specified in the AuthConfigFactory registerConfigProvider method is correct.

10.37.4 SEC5000 to SEC5099

SEVERE: SEC5054: Certificate has expired: {0}

Variable Information

{0}: Certificate

Explanation

The certificate has expired.

System Action

Processing is continued.

User Action

The certificate has expired.

Check the content of the certificate stored in the keystore or truststore.

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

This message is also output if the CA certificate stored in the truststore by default has expired.

In this case, delete the CA certificate and then reregister it if required.

For details on the procedure to delete the certificate, refer to "[5.3.3.6 Deleting the Certificate](#)".

Additionally, for details on the CA certificate that is stored by default, refer to "[12.7 CA Certificate Compatibility Information](#)".

10.37.5 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.38 Messages that Contain "UTIL" in the Message ID

10.38.1 UTIL6000 to UTIL6099

UTIL6046: Attempt to rename {0} to {1} failed after 6 retries

Variable Information

{0}: Deleted directory name

{1}: Temporary directory name

Explanation

Failed to delete the server instance.

System Action

Processing is interrupted.

User Action

Another program may have locked the files under {0}. Check if another program is using the files under {0}. If so, stop the processing for that program, and then delete the server instance again.

10.38.2 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.39 Messages that Contain "W" in the Message ID

If a message not explained in this section was output, action must be taken according to the explanation for the message with "IJMQ_" as the message number prefix. For details, refer to "Messages that Contain "IJMQ" in the Message ID" in the Java EE Operator's Guide.

If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.40 Messages that Contain "WEB" in the Message ID

10.40.1 WEB0100 to WEB0199

INFO: WEB0109: Property [{0}] is not yet supported

Variable Information

{0}: Property name

Explanation

The property specified in glassfish-web.xml is invalid.

System Action

The property {0} is ignored, and processing is continued.

User Action

Refer to "[3.2.1.2 Interstage Web application deployment descriptor \(glassfish-web.xml\)](#)", and specify a valid property and value.

WARNING: WEB0110: Ignoring invalid property [{0}] = [{1}]

Variable Information

{0}: Property name

{1}: Specified value

Explanation

A property defined in glassfish-web.xml is incorrect.

System Action

Processing is continued.

User Action

Refer to "[3.2.1.2 Interstage Web application deployment descriptor \(glassfish-web.xml\)](#)", and specify a valid property and value.

WEB0113: Virtual server [{0}] already has a web module [{1}] loaded at [{2}]; therefore web module [{3}] cannot be loaded at this context path on this virtual server.

Variable Information

{0}: Virtual server name
{1}: Name of already deployed web application
{2}: Context root name
{3}: Name of web application that could not be deployed

Explanation

Web application startup failed.

System Action

The web application cannot be executed.

User Action

Web applications with duplicate context roots cannot be deployed. Check if the context root is duplicated.

SEVERE: WEB0122: Unable to start web container

Explanation

Failed to start the web container.

System Action

Processing is interrupted.

User Action

Follow the action advised in the exception information and any other messages output at the same time to remove the cause of the error.

SEVERE: WEB0123: Unable to stop web container

Explanation

Failed to stop the web container.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information and any other messages output at the same time to remove the cause of the error.

WEB0124: Property element in sun-web.xml has null 'name' or 'value'

Explanation

The name or value has not been specified for the Interstage web application deployment descriptor (glassfish-web.xml) property.

System Action

Processing is interrupted.

User Action

Check if Interstage web application deployment descriptor (glassfish-web.xml) is incorrect.

WARNING: WEB0153: Unable to load configuration of web module [{0}]

Variable Information

{0}: Web application name

Explanation

An exception occurred while loading the web application.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information and any other messages output at the same time to remove the cause of the error. If the problem is still not resolved despite taking the above action, perform the following:

- Restart the IJServer cluster.
- Restart the Interstage Java EE 6 DAS service.

WARNING: WEB0156: Exception during invocation of PreDestroy-annotated method on JSP tag handler [{0}]

Variable Information

{0}: Class information

Explanation

An exception was thrown by the @PreDestroy-annotated method of the tag class being used on JSP.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information output at the same time to remove the cause of the error.

SEVERE: WEB0157: Unable to load session uuid generator [{0}]

Variable Information

{0}: Internal information

Explanation

Failed to initialize the web application.

System Action

Processing is continued.

User Action

Collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

SEVERE: WEB0161: Error loading web module [{0}]

Variable Information

{0}: Web application name

Explanation

Failed to load the web application.

System Action

Processing is continued.

User Action

Refer to the other messages and the exception information output at the same time, and remove the cause of the error.

If "com.fujitsu.interstage.javaee.util.uuid.InitializeFailedError" is output to the next exception information, take the action indicated by the message that was output immediately before this message.

If the problem is not resolved despite taking the above action, execute the following:

- Restart the IJServer cluster.
- Restart the Interstage Java EE 6 DAS service.

SEVERE: WEB0163: Exception processing HttpService configuration change

Explanation

Failed to change the HTTP service or the network configuration definition item.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information and any other messages output at the same time to remove the cause of the error.

INFO: WEB0169: Created HTTP listener [{0}] on host/port [{1}:{2}]

Variable Information

{0}: HTTP listener name
{1}: IP address
{2}: Port number

Explanation

The HTTP listener settings were configured.

System Action

Processing is continued.

User Action

Not required.

INFO: WEB0171: Created virtual server [{0}]

Variable Information

{0}: Internal information

Explanation

The web container settings were configured.

System Action

Processing is continued.

User Action

Not required.

INFO: WEB0172: Virtual server [{0}] loaded default web module [{1}]**Variable Information**

{0}: Internal information

{1}: Internal information

Explanation

The web container settings were configured.

System Action

Processing is continued.

User Action

Not required.

10.40.2 WEB0300 to WEB0399

WARNING: WEB0304: Unsupported http-service property ({0}) is being ignored**Variable Information**

{0}: Property name

Explanation

Unsupported properties have been specified in the HTTP service definition items.

System Action

The property {0} is ignored, and processing is continued.

User Action

Ensure that unnecessary properties have not been specified in the HTTP service definition items.

WARNING: WEB0307: All SSL protocol variants disabled for network-listener {0}, using SSL implementation specific defaults**Variable Information**

{0}: Network listener

Explanation

The configuration for all protocols of the network listener {0} has been disabled. The default protocol will be used.

System Action

Processing is continued.

User Action

Both the "Enabling SSL 3.0" and "Enabling TLS 1.0" Network Configuration Definition items are disabled. Enable both definition items in the operating environment.

WARNING: WEB0309: Unrecognized cipher: {0}**Variable Information**

{0}: Encryption method

Explanation

The specified encryption method {0} is not recognized.

System Action

Processing is continued.

User Action

Windows32/64 Solaris32/64

Refer to "[Encryption method group](#)" in "Network Configuration Definition Items" to check if the specified encryption method is invalid.

Linux32/64

Ignore this message.

WARNING: WEB0333: Unable to rename access log file {0} to {1}

Variable Information

{0}: Log file name before being renamed

{1}: Log file name after being renamed

Explanation

Failed to rename the log file for HTTP access log rotation.

System Action

The log file before being renamed is reopened, and processing is continued.

User Action

- If there is insufficient free disk space, secure more.
- If access privileges have not been configured correctly, change the access privileges so that the log file for which rotation is performed can be accessed.
- If an I/O error occurred, check if the disk device where the log file is saved is running normally.
- Check if 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.

SEVERE: WEB0340: Unable to write access log file {0}

Variable Information

{0}: Exception information

Explanation

Failed to write the HTTP access log.

System Action

Processing to write the HTTP access log for the response that failed is interrupted.

User Action

If "java.nio.BufferOverflowException" is output to {0}

The HTTP access log output may fail if the request query is too long or the Set-Cookie header content is too long, for example. Change the HTTP access log output format, or reduce the data that is added to the request or response.

SEVERE: WEB0346: Unable to reconfigure access log valve

Explanation

Failed to update the HTTP access log definition.

System Action

The write operation to the HTTP access log is stopped.

User Action

Review the value configured for the HTTP access log definition item.

For details on each value that is set, refer to "[7.7.2 HTTP Service Definition Items](#)".

SEVERE: WEB0347: Must not disable network-listener [{0}], because it is associated with admin virtual server [{1}]

Variable Information

{0}: HTTP listener name

{1}: Virtual server name

Explanation

The HTTP listener {0} cannot be disabled.

System Action

Unable to continue processing.

User Action

If this message is output, the Operation Management HTTP listener may have been disabled. If the Operation Management HTTP listener has been disabled, operations cannot be executed using the asadmin command.

As operations are not possible in this state, refer to "[Unable to Operate or Start due to Errors in HTTP Listener Settings](#)" and perform recovery.

SEVERE: WEB0351: Access logger has not yet been started

Explanation

The HTTP access log failed to start, therefore the processing to stop the HTTP access log was not performed.

System Action

The processing to stop the HTTP access log is not performed.

User Action

Not required.

WARNING: WEB0357: Unable to remove access log file {0}

Variable Information

{0}: Log file name

Explanation

Failed to remove the log file for HTTP access log rotation.

System Action

Processing is continued.

The log file for which the removal attempt failed is not removed after that.

User Action

- Remove the log file for which the removal attempt failed.

- If access privileges have not been configured correctly, change access privileges so that the log file for which removal is performed can be accessed.
- If an I/O error occurred, check if the disk device where the log file is saved is running normally.

WEB0359: The class [{0}] is annotated with an invalid scope

Variable Information

{0}: Class name

Explanation

There is an invalid scope annotation in the class {0}.

System Action

The servlet failed to initialize, therefore the request processing cannot be performed.

User Action

The annotation configured for the servlet, filter, and listener is incorrect. Review the application to determine whether the following annotations have been configured:

- javax.enterprise.context.ApplicationScoped
- javax.enterprise.context.ConversationScoped
- javax.enterprise.context.RequestScoped
- javax.enterprise.context.SessionScoped

10.40.3 WEB0400 to WEB0499

WEB0400: Unable to set request encoding [{0}] determined from sun-web.xml deployment descriptor of web application [{1}]

Variable Information

{0}: Encoding

{1}: Context root name

Explanation

The encoding specified in parameter-encoding of the Interstage web application deployment descriptor is invalid.

System Action

Request processing is interrupted.

User Action

Review the content of the Interstage web application deployment descriptor.

10.40.4 WEB0600 to WEB0699

INFO: WEB0671: Loading application [{0}] at [{1}]

Variable Information

{0}: Application name

{1}: Context root name

Explanation

The application has been loaded.

System Action

Processing is continued.

User Action

Not required.

10.40.5 WEB0700 to WEB0799

WARNING: WEB0791: An invalid request was received. The request does not match request-check value [{0}].

Variable Information

{0}: Value set for the operation mode to access the web container

Explanation

- The value set for the operation mode to access the web container and the actual operation mode do not match.
- An illegal attack may have been encountered from an external source.

System Action

The status code 400 (Bad Request) is returned.

User Action

Check if the value set for the operation mode to access the web container and the actual operation mode match. For details on the operation mode to access the web container, refer to "[Operation mode for access to the web container](#)" in "Network Configuration Definition Items".

If these settings match, investigate whether an attack has been encountered based on the IP addresses recorded in the HTTP access log.

10.40.6 WEB2000 to WEB2999

WEB2000: Invalid tag [{0}] is included in the deployment descriptor of the application [{1}]

Variable Information

{0}: Tag

{1}: Application path

Explanation

The Interstage web application descriptor (glassfish-web.xml) root element is invalid.

System Action

Processing is continued.

User Action

The Interstage web application descriptor (glassfish-web.xml) root element must be <glassfish-web-app>. Review the Interstage web application descriptor (glassfish-web.xml).

SEVERE: WEB2100: Unexpected error occurred while configuring session id. code={0}

Variable Information

{0}: Cause code

Explanation

Failed to initialize the web application.

System Action

Application initialization is interrupted. The application cannot be used.

User Action

Collect the problem investigation data using the `iscollectinfo` command, and [contact Fujitsu technical support](#).

WARNING: WEB2106: Network configuration is not proper. code={0}

Variable Information

{0}: Cause code

Explanation

The network environment is not appropriate.

System Action

Processing is continued.

User Action

If this message is output to a machine that is not connected to a network, ignore this message.

Linux32/64

It is possible that the hosts file settings are incorrect. Refer to "Common Notes for Interstage" - "Entering Information in the Hosts File" in "Chapter 3 Notes on Interstage Operation" of Product Notes, and review the hosts file.

If the problem is still not resolved, collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

10.40.7 WEB5000 to WEB5099

SEVERE: WEB5001: Exception during processing of event of type {0} for web module {1}

Variable Information

{0}: Internal information

{1}: Context information

Explanation

Event processing for the web application failed.

System Action

Processing is interrupted.

User Action

Follow the action advised in the exception information and any other messages output at the same time to remove the cause of the error.

10.40.8 WEB7000 to WEB7099

WEB7002: Security role name {0} used in a <run-as> without being defined in a <security-role>

Variable Information

{0}: Role specified in the deployment descriptor (web.xml)

Explanation

The role specified in the "run-as" tag has not been defined as a security role.

System Action

Processing is continued.

User Action

Not required.

To prevent the output of this message, define the role that is specified in the "run-as" tag as a security role, and then redeploy the application.

10.40.9 WEB9000 to WEB9099

WEB9031: WebappClassLoader unable to load resource [{0}], because it has not yet been started, or was already stopped

Variable Information

{0}: Resource name

Explanation

The web class loader has already stopped, therefore the resource could not be obtained.

System Action

Processing is interrupted.

User Action

- The use of the HotDeploy function during normal transactions is not recommended. Use the HotDeploy function when there are no requests. For details, refer to "[1.3.1 Notes About Deployment](#)" - "[Notes About HotDeploy](#)".
- If a thread has been generated in the application, ensure that the thread dies when the processing to close the application completes. This message may be output if the thread is still running after the processing to close the application. Examples of the processing that closes an application are as follows:
 - When a thread was generated using the init method
It is recommended you close threads created in the application by using the servlet destroy method.
 - When a thread was generated using the contextInitialized method
It is recommended you close threads created in the application by using the ServletContextListener contextDestroyed method.
- If Java logging was performed using your own log handler or log formatter, these classes may not have been archived in the system extension directory. For details, refer to "[4.17.6 Notes on when the Log is Output from the Application](#)".

WEB9032: Class {0} has unsupported major or minor version numbers, which are greater than those found in the Java Runtime Environment version {1}

Variable Information

{0}: Class name

{1}: JDK version

Explanation

Failed to load the class in the web class loader, because the version of the class that you tried to load was invalid.

System Action

Class loading is interrupted.

The class that you tried to load cannot be used.

User Action

The version of the class that you tried to load cannot be used with the version of JDK being used by Java EE 6. Check if the class was compiled with the correct version of JDK, and also ensure that the JDK used by Java EE 6 is valid.

WEB9033: Unable to load class with name [{0}], reason: {1}

Variable Information

{0}: Class name
{1}: Exception information

Explanation

Failed to load the class.

System Action

Class loading is interrupted.
The class that you tried to load cannot be used.

User Action

Follow the action advised in Exception information and any other messages to remove the cause of the error.

WARNING: WEB9034: SQL driver deregistration failed

Explanation

Failed to delete references to the JDBC driver loaded by the web class loader.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information and any other messages to remove the cause of the error.

WARNING: WEB9035: Unable to read data for class with name [{0}]

Variable Information

{0}: Class name

Explanation

Failed to read the class.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information and any other messages to remove the cause of the error.

WARNING: WEB9036: Unable to purge bean classes from BeanELResolver

Explanation

The Bean class references held by the BeanELResolver class could not be deleted.

System Action

Processing is continued.

User Action

Follow the action advised in the exception information and any other messages to remove the cause of the error.

WEB9037: Illegal JAR entry detected with name {0}

Variable Information

{0}: Resource name

Explanation

An illegal resource {0} has been detected in a JAR file under WEB-INF/lib.

System Action

Resource detection processing is interrupted.

User Action

Characters other than the file name, the dot ".", and the file extension may exist in the resource name {0}. Remove them if they exist, and recreate the JAR file.

WEB9038: Unable to validate JAR entry with name {0}

Variable Information

{0}: Resource name

Explanation

The resource {0} could not be detected in the JAR file under WEB-INF/lib.

System Action

Resource detection processing will be interrupted.

User Action

Follow the action advised in the exception information and any other messages to remove the cause of the error.

10.40.10 WEB9100 to WEB9199

WARNING: WEB9102: Web login failed: {0}

Variable Information

{0}: Detail information

Explanation

Web application authentication failed.

System Action

Processing is interrupted.

User Action

Refer to Detail information ({0}), and remove the cause of the error.

Possible causes are as follows:

- The user does not exist.
Check if the user exists.
- The password is invalid.
Check if the password is valid.

A message exception and an exception stack trace are output immediately after this message.

10.40.11 WEB9900 to WEB9999

WEB9901: Failed to close resource [{0}]

Variable Information

{0}: Resource obtained from the web class loader

Explanation

Failed to close the resource.

System Action

Processing is continued.

User Action

Refer to the other messages and the exception information output at the same time, and remove the cause of the error.

10.40.12 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.41 Messages that Contain "WELD" in the Message ID

10.41.1 WELD-000200 to WELD-000299

WELD-000214 Attempt to call begin() on a long-running conversation

Explanation

`javax.enterprise.context.Conversation#begin()` was executed in a state where the Conversation scope had already started.

System Action

Processing is interrupted.

User Action

Review the application processing so that `javax.enterprise.context.Conversation#begin()` is not executed after the Conversation scope is started.

WELD-000215 Attempt to call end() on a transient conversation

Explanation

`javax.enterprise.context.Conversation#end()` was executed in a state where the Conversation scope had not yet started.

System Action

Processing is interrupted.

User Action

Review the application processing so that `javax.enterprise.context.Conversation#end()` is not executed in a state where the Conversation scope has not yet started.

10.41.2 WELD-000300 to WELD-000399

WELD-000321 No conversation found to restore for id {0}

Variable Information

{0}: Conversation scope ID number

Explanation

The Conversation scope of ID {0} was not found.

System Action

Processing is interrupted.

User Action

The Conversation scope of ID {0} may have ended because of a timeout.

Check if a timeout has occurred.

10.41.3 WELD-000400 to WELD-000499

WELD-000404 Conditional observer method [{0}] cannot be declared by a @Dependent scoped bean

Variable Information

{0}: Observer method

Explanation

The Observer method has been declared for the Dependent scope class.

System Action

Processing is interrupted.

User Action

Change the scope of the class for which the Observer method has been declared to a scope other than Dependent.

10.41.4 WELD-000800 to WELD-000899

WELD-000816 Cannot determine constructor to use for {0}

Variable Information

{0}: Interface implemented by the injected class

Explanation

A class has not been specified for the `@New` annotation argument.

System Action

Processing is interrupted.

User Action

Specify the class to be injected in the argument.

10.41.5 WELD-000900 to WELD-000999

WELD-000900 1.1.8 (is)

Explanation

This message shows the version of the CDI.

System Action

Processing is continued.

User Action

Not required.

10.41.6 WELD-001300 to WELD-001399

WELD-001318 Cannot resolve an ambiguous dependency between {0}

Variable Information

{0}: Injected class candidate

Explanation

There are multiple classes that can be injected.

System Action

Processing is interrupted.

User Action

Check the CDI-related definition so that the class to be injected can be identified.

10.41.7 WELD-001400 to WELD-001499

WELD-001408 Unsatisfied dependencies for type [{0}] with qualifiers [{1}] at injection point [{2}]

Variable Information

{0}: Injected class or interface

{1}: Injected class qualifier

{2}: Injection destination

Explanation

Either the CDI-related definition for the injected class is insufficient, or the CDI is not valid.

System Action

Processing is interrupted.

User Action

Check the CDI-related definition for the injected class. Alternatively, check if beans.xml has been stored in the application.

WELD-001409 Ambiguous dependencies for type [{0}] with qualifiers [{1}] at injection point [{2}]. Possible dependencies [{3}]

Variable Information

{0}: Injected class or interface
{1}: Injected class qualifier
{2}: Injection destination
{3}: Injected class candidate

Explanation

There are multiple classes that can be injected.

System Action

Processing is interrupted.

User Action

Check the CDI-related definition so that the class to be injected can be identified.

WELD-001417 Enabled interceptor class {0} is neither annotated @Interceptor nor registered through a portable extension

Variable Information

{0}: Class defined as the Interceptor in beans.xml

Explanation

The @Interceptor annotation has not been granted to the class specified as the Interceptor in beans.xml.

System Action

Processing is interrupted.

User Action

To use an Interceptor, grant the @Interceptor annotation.
If the Interceptor is not to be used, delete the content specified for the Interceptor from beans.xml.

WELD-001422 Enabled alternative {0} is not annotated @Alternative

Variable Information

{0}: Class defined as the Alternative in beans.xml

Explanation

The @Alternative annotation has not been granted to the class in which the Alternative is enabled.

System Action

Processing is interrupted.

User Action

Grant the @Alternative annotation.

WELD-001424 The following disposal methods were declared but did not resolve to a producer method: {0}

Variable Information

{0}: disposer method

Explanation

The configuration of the disposer method is incorrect.

System Action

Processing is interrupted.

User Action

Check the definitions of the producer and disposer methods.

WELD-001450 Interceptor method {0} does not declare that it throws Exception.

Variable Information

{0}: Method specified for the Interceptor

Explanation

Throwing exceptions has not been declared in the Interceptor.

System Action

Processing is continued.

User Action

Declare the throwing of exceptions in the Interceptor.

10.41.8 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.42 Messages that Contain "WSC" in the Message ID

10.42.1 WSC04100 to WSC04199

ERROR: WSC04101: Invalid IP Address: Specify a valid IP Address: Specified value={0}

Variable Information

{0}: Specified IP address

Explanation

Invalid IP Address.

System Action

Processing is interrupted.

User Action

Check if the format (example: 127.0.0.1) used to specify the IP address is correct.

ERROR: WSC04106: Port number was not specified for IP Address: Specified value={0}

Variable Information

{0}: Specified IP address

Explanation

A port number was not specified for an IP Address.

System Action

Processing is interrupted.

User Action

Specify the IP address and port number of the Servlet container in the "ip-address:port-number" format.

ERROR: WSC04109: The specified IP address and port number are already in use in another IJServer cluster: Please specify different values: Specified value={0}

Variable Information

{0}: Specified IP address and port number

Explanation

The specified IP address and port number are already in use in another IJServer cluster.

System Action

Processing is interrupted.

User Action

Specify different values.

ERROR: WSC04112: Could not access file: {0}

Variable Information

{0}: Detail information

Explanation

Could not access file.

System Action

Processing is interrupted.

User Action

The following causes can be considered. Remove the cause, and reexecute processing.

If the problem still exists, collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

- Access authority is not granted to the file.
Access authority of the file may have been changed. Restore the access authority for the file, and reexecute processing.
- The file or directory is referenced by another application.
Stop other applications, and reexecute processing.
- The disk is defective.
A defect on the disk may be preventing files and directories from being accessed. Run a disk check
- Conflict with another process.
Conflict with another process may make the disk temporarily inaccessible. Reexecute processing.

ERROR: WSC04121: Specified web application does not exist: Specified value={0}

Variable Information

{0}: Web application name

Explanation

The web application from which you want to remove the linkage by using the wscadmin delete-application-ref subcommand does not exist.

System Action

Processing is interrupted.

User Action

Check the web application.

ERROR: WSC04122: A web application of the same name already exists on another IJServer cluster: In order to add a web application of the same name, a different virtual host must be used: IJServer cluster name={0}

Variable Information

{0}: IJServer cluster name

Explanation

A web application with the same name already exists on another IJServer cluster.

System Action

Processing is interrupted.

User Action

Redeploy after changing the application name.

To use the same application name, redeploy after changing the virtual host that the IJServer cluster uses.

- Running the web server and the IJServer cluster on the same machine
Change the virtual host using the asadmin create-virtual-host-ref subcommand.
- Running the web server and the IJServer cluster on different machines
Change the virtual host using the wscadmin add-virtual-host-ref subcommand.

For Java EE Stateless Session Bean format web service applications, change either the class or interface name, or the @WebService.serviceName value used in the web service endpoint.

ERROR: WSC04127: Invalid debug setting: Choose either true, or false: Specified value={0}

Variable Information

{0}: Specified value

Explanation

The specified value is invalid.

System Action

Processing is interrupted.

User Action

Specify "true" or "false".

ERROR: WSC04128: Invalid log size: Log size must be in the range 1 to 512: Specified value={0}

Variable Information

{0}: Specified log size

Explanation

Invalid log size.

System Action

Processing is interrupted.

User Action

Log size must be in the range 1 to 512.

ERROR: WSC04129: Invalid start time for log rotation: Value must be within the range 0 to 23: Specified value={0}

Variable Information

{0}: Rollover start time

Explanation

Invalid start time for log rotation.

System Action

Processing is interrupted.

User Action

Specify a value from 0 to 23 for the start time.

ERROR: WSC04130: Invalid rollover time for log rotation: Value must be within the range 1 to 24: Specified value={0}

Variable Information

{0}: Rollover repetition time

Explanation

Invalid periodic backup time for log rotation.

System Action

Processing is interrupted.

User Action

Specify a value from 1 to 24 for the repetition time.

ERROR: WSC04131: Invalid number of history files: Value must be within the range 1 to 9: Specified value={0}

Variable Information

{0}: Number of log files

Explanation

Invalid number of log files.

System Action

Processing is interrupted.

User Action

Specify a value from 1 to 9 for the number of log files.

ERROR: WSC04132: Web application is currently deployed on the specified Virtual host: Please retry the operation after undeploying the web application: Specified value={0}

Variable Information

{0}: Specified virtual host

Explanation

Another web application has already been deployed to the specified virtual host.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Undeploy the web application from the IJServer cluster, and reexecute the processing of virtual host deletion.
- Clear the virtual Host settings in the IJServer cluster settings.

ERROR: WSC04148: Error in virtual host of the specified web server: Specified value={0}

Variable Information

{0}: Virtual host of the specified web server

Explanation

Error in the virtual host name of the specified web server.

System Action

Processing is interrupted.

User Action

Check the definition of the web server's virtual host name.

ERROR: WSC04150: Error in specified web application name: Specified value={0}

Variable Information

{0}: Web application name

If a Java EE Stateless Session Bean format web service application has been deployed to the IJServer cluster, the name used in the web service URL from the context root, except for the initial forward slash ('/'), will be used as the web application name displayed in Variable Information.

Explanation

Error in specified web application name.

Specify a web application name according to the following naming rules:

- A web application name must be specified in up to 64 characters. (excluding the initial '/')

- The following characters can be used:
Alphanumeric characters, +, -, ., _, \$, /
- When a period (.) is used, it must be used with another character.

If '/' is specified at the beginning of a web application name, the name excluding '/' is used as the web application name.

System Action

Processing is interrupted.

User Action

Check that the web application name complies with the rules set out above.

For Java EE Stateless Session Bean format web service applications, change either the class or interface name, or the @WebService.serviceName value used in the web service endpoint.

ERROR: WSC04161: Error in specified directory: Please specify it by the absolute path within {0} bytes: Specified value={1}

Variable Information

{0}: Number of bytes that can be specified

{1}: Log output place directory

Explanation

Error in specified directory.

System Action

Processing is interrupted.

User Action

Specify the absolute path within the length specified by the existing directory.

The following values may have been specified incorrectly:

- The path more than the specified length
- When a relative path is specified
- When a file is specified
- The directory not existing

ERROR: WSC04163: Some log files could not be deleted: Please delete remaining log files manually: Log output directory={0}

Variable Information

{0}: Log output place directory

Explanation

Some log files could not be deleted.

System Action

Processing is interrupted.

User Action

Check if some log files remain in the directory displayed in Variable Information.

Delete the log files which remain by manual operation.

A log file cannot be deleted when the others are referring to that log file.

ERROR: WSC04165: The value specified for \${serverRoot} contains a reserved word: Please specify a different value: The value must be an absolute path and less than {0} bytes long: Specified value={1}

Variable Information

{0}: Number of bytes that can be specified
{1}: Log output directory

Explanation

\${serverRoot} cannot be specified because of a reservation word.

System Action

Processing is interrupted.

User Action

Specify the existing directory, within the specified length, with an absolute path.

ERROR: WSC04170: Specified directory is not a directory: Please enter a valid directory name: Specified value={0}

Variable Information

{0}: Log output directory

Explanation

The specified directory is not a directory.

System Action

Processing is interrupted.

User Action

Specify a valid directory.

ERROR: WSC04173: Log settings cannot be updated while the web server is running: Please stop the web server and try again

Explanation

Because the web server has not stopped, the log setting cannot be updated

System Action

Processing is interrupted.

User Action

Stop the web server, and reexecute processing.

ERROR: WSC04174: The value specified for the log output directory contains an invalid character: Please specify a different value: The value must be an absolute path and less than {0} bytes long: Specified value={1}

Variable Information

{0}: Number of bytes that can be specified
{1}: Log output directory

Explanation

Invalid character in the specified log directory.

System Action

Processing is interrupted.

User Action

The following characters cannot be used for the log output directory.

Remove the invalid character, then reexecute processing.

Windows32/64

A hash (#), a double quotation mark ("), comma (,), a slash (/), a semicolon(;), an asterisk (*), question mark (?), brackets (>,<), and a pipe (|)

A colon (:) is usable only as a delimiter for drives.

Solaris32/64 Linux32/64

A sharp (#)

ERROR: WSC04178: The value specified to be a Monitoring Method is invalid: Choose either ping, port, or none: Specified value={0}

Variable Information

{0}: Specified monitoring method

Explanation

The value specified as the monitoring method is invalid.

System Action

Processing is interrupted.

User Action

Specify a correct value.

ERROR: WSC04179: The value specified for check interval is invalid: Specify a value from 1 to 99999: Specified value={0}

Variable Information

{0}: Specified Fault monitoring interval

Explanation

The value specified to as the monitoring interval is invalid.

System Action

Processing is interrupted.

User Action

Specify an interval value in the range 1 to 99999.

ERROR: WSC04180: The value specified to be a Response Wait Time is invalid: Value must be within the range 1 to 99: Specified value={0}

Variable Information

{0}: Specified response wait time

Explanation

The value specified as the response wait time is invalid.

System Action

Processing is interrupted.

User Action

Specify a response wait time in the range 1 to 99.

ERROR: WSC04181: The value specified to be a Retry Count is invalid: Value must be within the range 0 to 99999: Specified value={0}

Variable Information

{0}: Specified the number of retries at the time of fault

Explanation

The value specified as the number of retries at the time of the fault is invalid.

System Action

Processing is interrupted.

User Action

Specify a value in the range 0 to 99999.

ERROR: WSC04182: The value specified to be a Startup Wait Time is invalid: Value must be within the range 0 to 600 Specified value={0}

Variable Information

{0}: Specified startup wait time

Explanation

The value specified as a startup wait time is invalid.

System Action

Processing is interrupted.

User Action

Specify a startup wait time in the range of 0 to 600.

ERROR: WSC04185: Error in specified servlet container identifier: Specified value={0}

Variable Information

{0}: Servlet container identifier

Explanation

An error is in the specified servlet container identifier.

A servlet container identifier needs to specify according to the following naming agreement.

- It is 32 bytes or less.
- Any characters other than the following characters should not be used.
An alphanumeric character, '_', '.'.

System Action

Processing is interrupted.

User Action

Check a servlet container identifier.

ERROR: WSC04187: Error in automatic web container identifier numbering

Explanation

Since it was over the maximum number which can carry out automatic numbering of the servlet container identifier, automatic numbering failed.

System Action

Processing is interrupted.

User Action

Specify a servlet container identifier by --identifier option.

ERROR: WSC04195: The value specified for IJServer cluster name is invalid: Specified value={0}

Variable Information

{0}: Specified value

Explanation

The value specified for the IJServer cluster name is invalid.

System Action

Processing is interrupted.

User Action

Halfwidth alphanumerics and '_' (underscores) can be specified for the IJServer cluster name. A maximum of 28 characters can be specified.

Note that uppercase and lowercase characters are treated differently.

Check the value specified for the IJServer cluster name.

ERROR: WSC04199: Unknown error occurred: {0}

Variable Information

{0}: Detail information

Explanation

- When Detail information displays "Failed to allocate memory":
There is insufficient memory.
- When Detail information displays any other message:
An unexpected error has occurred.

System Action

Processing is interrupted.

User Action

- When Detail information displays "Failed to allocate memory":
Check if there is sufficient memory. Stop other applications, and reduce the load on the machine.

- When Detail information displays any other message:
Collect the problem investigation data using the iscollectinfo command and [contact Fujitsu technical support](#).

10.42.2 WSC04400 to WSC04499

ERROR: WSC04400: The Web server does not exist: Web server name={0}

Variable Information

{0}: Web server name

Explanation

The web server displayed in Variable Information does not exist.

System Action

Processing is interrupted.

User Action

Check if the web server exists.

ERROR: WSC04403: The value specified for send/receive timeouts is invalid: Specify a value from [1] to [2147483647]: Specified value={0}

Variable Information

{0}: Send/receive timeout

Explanation

Invalid send and receive timeout.

System Action

Processing is interrupted.

User Action

Check if the send/receive timeout is within the range that can be specified.

ERROR: WSC04404: Value specified for the maximum number of connections to the Web container is invalid: Specify a value from 0 to 2048: Specified value={0}

Variable Information

{0}: Maximum number of connections to the web container

Explanation

Invalid maximum number of connections to the web container.

System Action

Processing is interrupted.

User Action

Specify the maximum number of connections to the web container from 0 to 2048.

ERROR: WSC04416: The specified log output destination directory has been set for another Web server connector (Web server name={0}): Specify a different Web server connector log output destination: Specified value {1}

Variable Information

{0}: Web server name
{1}: Value specified in the log output destination directory

Explanation

The specified log output destination directory has been set for another web server connector.

System Action

Processing is interrupted.

User Action

Change the log output destination directory.

ERROR: WSC04417: A web application of the same name already exists on another IJServer cluster: IJServer cluster name={0}

Variable Information

{0}: IJServer cluster name

Explanation

A web application with the same name already exists on another IJServer cluster.

If the following conditions apply, web applications with the same name cannot be deployed on different IJServer clusters:

- When using the same web server, and
- When using the same virtual host, or when not using any virtual host

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Redeploy after changing the web application name.
- Redeploy after changing the web server used by the IJServer cluster or after changing the virtual host.

For Java EE Stateless Session Bean format web service applications, change either the class or interface name, or the @WebService.serviceName value used in the web service endpoint.

ERROR: WSC04420: Cannot configure specified IJServer cluster definition: IJServer cluster name={0}: created by={1}

Variable Information

{0}: IJServer cluster name
{1}: Method used to set up the linkage settings of the IJServer cluster

Explanation

Unable to reference or change the settings of the specified IJServer cluster.

- When Variable Information {1} is javaee6
Linkage is set up using the asadmin command.

The linkage settings of the IJServer cluster that have been set up using the asadmin command cannot be operated by the wscadmin command.

- When Variable Information {1} is wscadmin

Linkage is set up using the wscadmin command.

The linkage settings of the IJServer cluster that have been set up using the wscadmin command cannot be operated by the asadmin command.

System Action

Processing is interrupted.

User Action

- When Variable Information {1} is javaee6

Operate the relevant IJServer cluster by using the Java EE 6 asadmin command.

- When Variable Information {1} is wscadmin

Operate the relevant IJServer cluster by using the wscadmin command.

ERROR: WSC04421: The Web server connector operating environment does not exist: Web server name={0}

Variable Information

{0}: Web server name

Explanation

The operating environment of the web server connector does not exist on the specified web server.

System Action

Processing is interrupted.

User Action

Create the operating environment of the web server connector.

ERROR: WSC04422: The Web server connector operating environment already exists: Specified value={0}

Variable Information

{0}: Web server name

Explanation

The operating environment of the web server connector already exists on the specified web server.

System Action

Processing is interrupted.

User Action

Check if the correct web server name has been specified.

ERROR: WSC04423: The specified IJServer cluster cannot be used: IJServer cluster name={0}

Variable Information

{0}: IJServer cluster name

Explanation

Linkage with the web server has not been configured for the specified IIServer cluster.

System Action

Processing is interrupted.

User Action

Check the web server configuration, and then reexecute the command.

ERROR: WSC04424: Invalid parameter or option: detail={0}

Variable Information

{0}: Detail information

Explanation

Possible causes are as follows:

- An option or operand required for executing the command has not been specified.
- Incorrect settings and format have been used.
- An invalid option or operand has been specified.
- A path name that contains an empty space has been specified in the -h option of the wscrestore command.

System Action

Processing is interrupted.

User Action

Check the command format.

ERROR: WSC04425: Cannot delete while the Web server is running: Stop the Web server and try again: Web server name={0}

Variable Information

{0}: Web server name

Explanation

Unable to delete, because the web server is running.

System Action

Processing is interrupted.

User Action

Stop the web server, and then reexecute processing.

ERROR: WSC04426: The specified IP address or port number is invalid: Specified value={0}

Variable Information

{0}: IP address, port number

Explanation

The specified IP address or port number does not exist.

Alternatively, an invalid IP address or port number has been specified.

System Action

Processing is interrupted.

User Action

Check the IP address and the port number.

ERROR: WSC04427: The specified IP address and port number already exist: Specify different values: Specified value={0}

Variable Information

{0}: IP address, port number

Explanation

This server instance IP address and port number combination has been already configured.

System Action

Processing is interrupted.

User Action

Specify the IP address and port number combination that will not cause duplication.

ERROR: WSC04428: A servlet container identifier of the same name already exists: Specified value={0}

Variable Information

{0}: Servlet container identifier

Explanation

The specified Servlet container identifier has already been configured.

System Action

Processing is interrupted.

User Action

Specify a Servlet container identifier that will not cause duplication.

ERROR: WSC04429: The specified application already exists: Specified value={0}

Variable Information

{0}: Application name

Explanation

The application you tried to add to the dispatch destination already exists.

System Action

Processing is interrupted.

User Action

Specify a different application.

ERROR: WSC04430: The virtual host name is already in use: Specified value={0}

Variable Information

{0}: Virtual host name

Explanation

The specified virtual host name is already being used.

System Action

Processing is interrupted.

User Action

Specify a different virtual host.

ERROR: WSC04494: Cannot update the Web server connector operating environment: {0}

Explanation

Failed to update the operating environment of the web server connector.

System Action

Processing is interrupted.

User Action

Possible causes are given below. After taking the appropriate action, reexecute processing.

- Access authority is not granted to the file.
Access authority of the file may have been changed. Restore the access authority for the file, and reexecute processing.
- The disk is defective.
A defect on the disk may be preventing files and directories from being accessed. Run a disk check.
- There is insufficient disk space.
Secure sufficient free disk space.

If the problem is still not resolved, take the following action:

- Using administrator privileges, delete the target operating environment of the web server connector using the wscadmin delete-env subcommand, and then after recreating the environment using the wscadmin create-env subcommand, configure the required settings again.
- If there are backed up resources, restore them, and then configure the required settings again.

ERROR: WSC04495: An exclusion operation is in progress.

Explanation

A process that cannot be executed simultaneously with other processes is being executed.

System Action

Processing is interrupted.

User Action

Either the wscadmin command or the asadmin command is running.

Wait for a while, and then retry.

ERROR: WSC04496: Failed to lock the Web server connector operating environment: {0}

Variable Information

{0}: Detail information

Explanation

Unable to operate the target operating environment of the web server connector.
Requests to the web application have been processing for a long time.

System Action

Processing is interrupted.

User Action

Wait for a while, and then reexecute the command.
Alternatively, you may execute the command after stopping the web server.

ERROR: WSC04497: Failed to load library: {0}

Variable Information

{0}: Detail information

Explanation

Unable to load the library required for the operation.

System Action

Processing is interrupted.

User Action

Install the required package after referring to the Installation Guide.

ERROR: WSC04498: Cannot create the Web server connector operating environment: {0}

Variable Information

{0}: Detail information

Explanation

Unable to create the operating environment of the web server connector.

System Action

Processing is interrupted.

User Action

Possible causes are given below. After taking the appropriate action, reexecute processing.

- Access authority is not granted to the file.
Access authority of the file may have been changed. Restore the access authority for the file, and reexecute processing.
- The disk is defective.
A defect on the disk may be preventing files and directories from being accessed. Run a disk check.
- There is insufficient disk space.
Secure sufficient free disk space.
- The web server was started before executing the wscadmin create-env subcommand.
After stopping the web server, execute the wscadmin create-env subcommand again.

If the problem is still not resolved, take the following action:

- Using administrator privileges, delete the target operating environment of the web server connector using the wscadmin delete-env subcommand, and then after recreating the environment using the wscadmin create-env subcommand, configure the required settings again.
- If there are backed up resources, restore them and then configure the required settings again.

ERROR: WSC04499: Internal definition error: {0}**Variable Information**

{0}: Detail information

Explanation

There are errors in the internal definition information of the web server connector.

The definitions are in an abnormal state due to direct editing of the internal definition file or unexpected errors.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- If there are backed up resources, restore them.
- Delete the target operating environment of the web server connector using the wscadmin delete-env subcommand, and then after recreating the environment using the wscadmin create-env subcommand, configure the required settings again.

10.42.3 WSC10000 to WSC10099

INFO: WSC10001: The backup is started.**Explanation**

The web server connector resource backup has started.

INFO: WSC10002: The backup was processed normally.**Explanation**

The web server connector resource backup was processed normally.

ERROR: WSC10003: Failed to backup.**Explanation**

Failed to back up the web server connector resources.

User Action

Take action according to the message output immediately before this message.

INFO: WSC10004: The restoration is started.**Explanation**

The restore of the web server connector resources has started.

INFO: WSC10005: The restoration was processed normally.**Explanation**

The restore of the web server connector resources was processed normally.

ERROR: WSC10006: Failed to restore.**Explanation**

Failed to restore the web server connector resources.

User Action

IIServer resource restore processing has completed successfully.

INFO: WSC10007: Web Server Connector materials picking command started.**Explanation**

Investigation data collection for the web server connector resources has started.

INFO: WSC10008: Web Server Connector materials picking command stopped.**Explanation**

Investigation data collection for the web server connector resources has been performed normally.

ERROR: WSC10009: Failed in the acquisition of the investigation materials.**Explanation**

Failed to collect the investigation data for the web server connector resources.

User Action

Take action according to the message output immediately prior to this message.

10.42.4 WSC10100 to WSC10199

ERROR: WSC10106: No such file or directory. ({0})**Variable Information**

{0}: File or directory name

Explanation

The file or directory indicated by {0} is not found.

Cause

Possible causes are as follows:

- A nonexistent file or directory was specified in the argument.
- The essential file or essential directory required for processing does not exist.

User Action

Ensure that the target file or directory exists.

ERROR: WSC10107: Not enough memory.**Explanation**

A memory shortage occurred.

User Action

Terminate all unnecessary applications. Also, refer to the Tuning Guide and check if there is sufficient memory. If there is insufficient memory, increase it.

ERROR: WSC10111: Permission denied.**Explanation**

Execution authority is not granted.

User Action

Execute with administrator authority.

ERROR: WSC10113: Failed to make the directory. ({0}) errno=%d**Variable Information**

{0}: Directory name

%d: Error number

Explanation

The directory indicated by {0} could not be allocated.

Cause

1. Directory name is too long.
2. An I/O error occurred in the system.

User Action

1. Change the directory that backs up the web server connector resources.
2. Check the system for errors.

ERROR: WSC10114: The path name is too long. ({0})**Variable Information**

{0}: Path name

Explanation

The length of the path indicated by {0} exceeds the limit.

User Action

Change the path specified in the command argument and reexecute.

INFO: WSC10115: Usage: wscbackup -d Directory**Explanation**

The usage of the resource backup command is invalid.

User Action

Refer to "[9.15 wscbackup](#)".

INFO: WSC10116: Usage: wscrestore -d Directory [-h host_table]

Explanation

The usage of the resource restore command is invalid.

User Action

Refer to "[9.16 wscrestore](#)".

ERROR: WSC10122: It failed in the set of the owner and group ID. ({0})

Variable Information

{0}: File name

Explanation

The file {0} owner ID and group ID cannot be changed.

Cause

A file system error may have occurred.

System Action

Processing is interrupted.

User Action

Check the file system for errors.

If the problem cannot be solved, [contact Fujitsu technical support](#).

ERROR: WSC10125: The resources of the Web Server Connector have already exist. ({0})

Variable Information

{0}: Name of the directory to which the resource is to be backed up or restored

Explanation

The web server connector resources already exist under the directory {0}.

User Action

Change the directory that backs up the web server connector resources.

ERROR: WSC10126: Failed to open the directory. ({0}) errno={1}

Variable Information

{0}: Directory name

{1}: Error number

Explanation

The directory indicated by {0} could not be opened. (Error number: {1})

Cause

An I/O error occurred in the system.

User Action

Check the system for errors.

ERROR: WSC10127: Failed to close the directory. ({0}) errno={1}

Variable Information

{0}: Directory name

{1}: Error number

Explanation

The directory indicated by {0} could not be closed. (Error number: {1})

Cause

An I/O error occurred in the system.

User Action

Check the system for errors.

ERROR: WSC10129: The resources of the Web Server Connector don't exist. ({0})

Variable Information

{0}: Directory name

Explanation

The web server connector resources do not exist under the directory {0}.

User Action

Specify the directory that was used to back up the web server connector resources.

ERROR: WSC10131: Failed to copy the file. ({0}) errno=%d

Variable Information

{0}: File name

%d: Error number

Explanation

The file indicated by {0} could not be copied.

Cause

1. The path name ({0}) has exceeded the maximum length.
2. An I/O error has occurred in the system.

User Action

1. If the cause is 1., change the path specified in the command argument and then reexecute the command.
2. If the cause is 2., take the following action:
 - Check that there is sufficient empty space on the disk.
 - Check if there is an error with the specification of the copy destination.

- Check the system for errors.

ERROR: WSC10132: Interstage package has not been installed.**Explanation**

The Interstage package is not installed.

User Action

Install the Interstage package.

ERROR: WSC10133: Interstage HTTP Server 2.2 has not been installed**Explanation**

Interstage HTTP Server 2.2 has not been installed.

User Action

Install the Interstage HTTP Server 2.2.

WARNING: WSC10134: Cannot find ({0}). This resource is not backed up or restored.**Variable Information**

{0}: File name, Directory name

Explanation

The file or directory indicated by {0} is not found. The file cannot be extracted, backed up or restored.

Cause

The file or directory indicated by {0} does not exist at the specified location.

User Action

If the file or directory indicated by {0} needs to be backed up or restored, place the file or directory at the specified location.

There is no need to take action if this message is output when resources are extracted.

ERROR: WSC10135: The error occurred in IP address conversion processing.**Explanation**

The error occurred in IP address conversion processing.

Cause

Possible causes are as follows:

- Insufficient memory.

System Action

Processing is interrupted.

User Action

- Close unnecessary applications and reexecute. If the error is still not resolved, increase the main memory or extend the swap area.
- If another message was output directly before this message, take action according to that message.

- If the problem still exists, collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

WARNING: WSC10137: The timeout occurred.**Explanation**

A timeout occurred in IP address conversion processing.

Cause

The following causes can be considered.

- The shortage of a memory has occurred.
- The machine is overloaded.

User Action

Check if IP address conversion was performed normally.

When the IP address conversion did operate normally, user action is unnecessary.

When the IP address conversion did not operate normally, reexecute IP address conversion processing after performing the following:

- Stop other applications and decrease machine load.
- Wait a short time before canceling a fault load state.

ERROR: WSC10138: System error. {0}**Variable Information**

{0}: Error information

Explanation

An error has occurred in the system.

System Action

Processing is interrupted.

User Action

Reexecute the command.

If the problem still exists, collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

ERROR: WSC10139: Syntax error on line {0} of ({1}) : {2}**Variable Information**

{0}: Line in which the error was generated

{1}: Definition file name specified by `-h`

{2}: Contents of the corresponding line

Explanation

An error is in description of the definition file specified by `-h`.

System Action

Processing is interrupted.

User Action

Refer to "[9.16 wscrestore](#)", and correctly describe the definition file specified by -h.

WARNING: WSC10140: Description is not found. {0}

Variable Information

{0}: Definition file name specified by -h

Explanation

There is no description in the definition file specified by -h.
Alternatively, the specified path is not a file.

System Action

It is assumed that the description is not in the definition file, and processing is continued.

User Action

Refer to "[9.16 wscrestore](#)", and correctly describe the definition file specified by -h.

INFO: WSC10141: {0} : before={1} after={2} server={3}

Variable Information

{0}: Type of the updated information

"IP address of IJServer cluster" : Updates to the IP address of a IJServer cluster

{1}: The IP address before conversion

{2}: The IP address after conversion

{3}: IJServer cluster name

Explanation

The information about {0} was updated.

10.42.5 When there is no Message Number

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

10.43 Messages without a Message ID

10.43.1 Messages that are Output when the asadmin Command is Executed

Authentication failed for user: {0} (Usually, this means invalid user name and/or password)

Variable Information

{0}: User name

Explanation

The admin user ID and/or password is invalid.

System Action

Processing is interrupted.

User Action

Specify the correct user name and password, and then reexecute the command.

com.sun.enterprise.universal.xml.MinixmlParserException: {0}

Variable Information

{0}: Detail message

Explanation

Failed to parse domain.xml.

System Action

Processing is interrupted.

User Action

The product environment has been corrupted, therefore reinstall the product.

Command `_deploy` did not complete successfully on server instance {0}: {1}

Variable Information

{0}: Server instance name

{1}: Detail information

Explanation

Deployment to the server instance was not performed.

System Action

Processing is interrupted.

User Action

Check Detail information {1} that is output, refer to the table below, and then take the action corresponding to Detail information {1}.

| Detail information {1} | Variable Information in Detail information {1} | Explanation and Action |
|--|--|---|
| Failed to load the application on instance [%s]. The application will not run properly. Please fix your application and redeploy. Exception message | [%s]: Server instance name | The path in the libraries option of the deploy subcommand may be incorrect. After undeploying using the undeploy subcommand, specify the correct path in the libraries option and execute the deploy command. |
| Could not read the file [%s] to upload it. | [%s]: Temporary file name | Failed to reference the temporary file created by the deployment process. The temporary file may have been deleted during processing. Redeploy the application. |

If any detail information other than the above is output, remove the cause of the error based on the detail information, and redeploy the command.

Command {0} completed with warnings.

Variable Information

{0}: Subcommand name

Explanation

The command displayed in the Variable Information {0} has been executed. A warning occurred during execution.

System Action

The return value 0 is returned.

User Action

- The execution results and warning messages may be output for each server instance. Refer to "[Notes on the asadmin command](#)" for details.
- If the warning message below is output at the same time, the path in the libraries option of the deploy subcommand may be incorrect. After undeploying using the undeploy subcommand, specify the correct path in the libraries option and execute the deploy command.

WARNING: Command _deploy did not complete successfully on server instance <server instance name>: remote failure: Failed to load the application on instance <server instance name>. The application will not run properly. Please fix your application and redeploy.

<exception message>

- If any messages other than the above are output, remove the cause of the error based on messages output at the same time or messages output to the server log, and then reexecute the command.

Command {0} failed.

Variable Information

{0}: Subcommand name

Explanation

Failed to execute the command that was output to the Variable Information subcommand name.

System Action

Processing is interrupted.

User Action

Based on the message that was output at the same time, remove the cause of the error, and then reexecute the command.

Command {0} is missing required options

Variable Information

{0}: Option name

Explanation

A required option was not specified, therefore execution of the command failed.

System Action

Processing is interrupted.

User Action

Specify the option displayed in Variable Information, and then reexecute the command.

Solaris32/64 Linux32/64

Check if the string specified in the command option contains spaces.

If the specified string contains spaces, delete the spaces, and then reexecute the command.

For details, refer to "[Specifying a character string including a space](#)".

Command {0} not found.

Variable Information

{0}: Subcommand name

Explanation

The subcommand name was not found.

System Action

Processing is interrupted.

User Action

Specify the correct subcommand name, and then reexecute the command.

Command {0} only accepts one operand

Variable Information

{0}: Subcommand name

Explanation

The specified number of operands is invalid, therefore execution of the command failed.

System Action

Processing is interrupted.

User Action

Specify one operand, and then reexecute the command.

Solaris32/64 Linux32/64

- Check if the string specified in the command option contains spaces.
If the specified string contains spaces, delete the spaces, and then reexecute the command.
For details, refer to "[Specifying a character string including a space](#)".
- This message is also output when "*" is specified in the operand. Do not specify "*".
- It is possible that escape may not have been performed for characters that require the command option or the operand value escape.
Refer to "[Using escape characters](#)".

Command {0} requires an operand of type {1}

Variable Information

{0}: Command name

{1}: Operand type

Explanation

An operand was not specified, therefore execution of the command failed.

System Action

Processing is interrupted.

User Action

Specify the operand, and then reexecute the command.

Command create-file-user requires a password named AS_ADMIN_USERPASSWORD

Add a line of the following form to a password file:

AS_ADMIN_USERPASSWORD=yourpassword

Specify that password file to asadmin with the --passwordfile option.

Explanation

A password was not specified.

System Action

Processing is interrupted.

User Action

Specify a password.

By adding the entry shown below to the file specified in the --passwordfile option, it is possible to specify a password for the file realm user that is to be created.

If an entry is not added, the password can be entered in the prompt that is displayed.

Command failed on node {0} ({1}): {2}**Variable Information**

{0}: Node name

{1}: Host name

{2}: Detail information

Explanation

The command has failed to execute.

System Action

Processing is interrupted.

User Action

Take the action indicated by the message output at the same time, remove the cause of command execution failure, and then reexecute the command.

Could not contact the DAS running at {0}:{1}. This could be because a firewall is blocking the connection back to the DAS or because the DAS host is known by a different name on the instance host {2}. To change the hostname that the DAS uses to identify itself please update the DAS admin HTTP listener address.**Variable Information**

{0}: Host name

{1}: Port number

Explanation

Failed to connect to the Interstage Java EE 6 DAS service.

System Action

Processing is interrupted.

User Action

If this message is output it is possible that the ephemeral ports have run out.

Refer to "java.net.SocketException: No buffer space available (maximum connections reached?)" in "[10.43.23 Exception Information that Starts with "java.net.SocketException"](#)", and then take the required action.

Deprecated syntax, instead use: {0}

Variable Information

{0}: Recommended command format

Explanation

The command format that was used is not recommended.

System Action

Processing is continued.

User Action

Not required.

Instead of using a command format that is not recommended, use one that is recommended.

Domain {0} at {1} is running. Stop it first.

Variable Information

{0}: Domain name

{1}: Directory that stores files used by the Interstage Java EE 6 DAS service

Explanation

The Interstage Java EE 6 DAS service has not stopped.

System Action

Processing is interrupted.

User Action

Stop the Interstage Java EE 6 DAS service.

Error starting domain {0}.

Variable Information

{0}: Domain name

Explanation

An error occurred during the Interstage Java EE 6 DAS service start processing.

System Action

Processing is interrupted.

User Action

Based on the message that was output at the same time, remove the cause of the error, and then reexecute the command.

Failed to connect to DAS during synchronization, caused by: {0}

Variable Information

{0}: Detail information

Explanation

Connection to the Interstage Java EE 6 DAS service failed while the repository was being synchronized.

System Action

Processing is interrupted.

User Action

Check if the Interstage Java EE 6 DAS service is running.

Failed to rendezvous with DAS on {0}:{1}. Please check if this server is running, that the host and port are correct, and that this server is configured to allow remote access.

Variable Information

{0}: Host name

{1}: Port number

Explanation

Failed to connect to the Interstage Java EE 6 DAS service.

System Action

Processing is interrupted.

User Action

The Interstage Java EE 6 DAS service may have stopped. Check if it is running.

If the Interstage Java EE 6 DAS service is running, it is possible that the ephemeral ports have run out.

Refer to "java.net.SocketException: No buffer space available (maximum connections reached?)" in "[10.43.23 Exception Information that Starts with "java.net.SocketException"](#)", and then take the required action.

Failed to start process named {0}. Detail={1}

Variable Information

{0}: Server instance name

{1}: Detail information

Explanation

Failed to start the server instance.

System Action

Processing is interrupted.

User Action

- Take the action indicated by the message output before and after this message.
- Take the action indicated by the message output to the event log (Windows(R)) or the system log (Solaris/Linux), and investigate the cause of the failure.

If the problem is still not resolved despite taking the above action, collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

Failed to start process named {0}. PCMI Error Code={1}.

Variable Information

{0}: Server instance name

{1}: Error information

Explanation

Failed to start the server instance.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Take the action indicated by the message output before and after this message.
- Check Error information {1} that was output, and then follow the action advised in the table below.

| Error information {1} | Explanation and Action |
|-------------------------|--|
| 100 | <p>Failed to read the PCMI profile, or the value specified for the PCMI profile definition item is incorrect.</p> <p>Take the action indicated by the message output to the event log (Windows(R)) or the system log (Solaris/Linux) so that the PCMI profile can be read.</p> |
| 301 | <p>A server instance with the same name is running, or the start or stop processing is in progress. If the server instance name is incorrect, perform the processing again using the correct server instance name.</p> <p>Additionally, if processing was performed for the IJServer cluster and the IJServer cluster name is incorrect, perform the processing again using the correct IJServer cluster name.</p> <p>This message may be output if the start operation was performed immediately after stopping the server instance or the IJServer cluster. Follow the action advised in "Troubleshooting" - "Command Execution Errors" - "Errors during Successive Start/Stop Operations".</p> |
| 700 | <p>An error occurred during the server instance start processing. Take the action indicated by the message output to the event log (Windows(R)) or the system log (Solaris/Linux), and investigate the cause of the failure. If a message is not output, investigate the cause of the failure based on the information output to the server log and the Java VM log. If a message that shows a Java VM error is output, refer to "Tuning Guide" - "JDK/JRE Tuning" and investigate the cause of abnormal termination.</p> <p>In all other cases, take the following actions:</p> <ul style="list-style-type: none"> - The Java VM option may be incorrect. Refer to the Java VM log file, and check if the Java VM option is correct. - The port used for debugging the server instance is duplicated with another port. Check if the port used for debugging the server instance is already being used. - There may be insufficient memory. Check if there is sufficient memory. |
| 701 | <p>A timeout occurred during the server instance start processing. Refer to the thread dump output to the Java VM log, and check the locations where processing delays have occurred.</p> <ul style="list-style-type: none"> - If the initialization processing of the lifecycle module or the application is taking a long time, either review the processing so that it does not take too long, or increase the "process startup wait time" value. - The server instance start processing may take a long time because of the system load. Increase the "process startup wait time" value. <p>For details on the "process startup wait time" configuration, refer to "7.1 PCMI Service Definition Items".</p> |
| 1101 | <p>The PCMI service is not running. Start the PCMI service.</p> |
| Other error information | <p>Collect the problem investigation data using the iscollectinfo command and contact Fujitsu technical support.</p> |

Failed to stop process named {0}. PCMI Error Code={1}.

Variable Information

{0}: Server instance name

{1}: Error information

Explanation

Failed to stop the server instance.

System Action

Processing is interrupted.

User Action

- Take the action indicated by the message output before and after this message.
- Check Error information {1} that was output, and then follow the action advised in the table below.

| Error information {1} | Explanation and Action |
|-------------------------|--|
| 303 | <p>The start or stop processing is in progress for a server instance with the same name.</p> <p>If the server instance name is incorrect, perform the processing again using the correct server instance name.</p> <p>Additionally, if processing was performed for the IJServer cluster and the IJServer cluster name is incorrect, perform the processing again using the correct IJServer cluster name.</p> |
| Other error information | <p>Collect the problem investigation data using the <code>iscollectinfo</code> command and contact Fujitsu technical support.</p> |

FATAL ERROR in native method: JDWP No transports initialized, jvmtiError=AGENT_ERROR_TRANSPORT_INIT(197)

Explanation

A port that will be used for the debug could not be opened.

System Action

Processing is interrupted.

User Action

Another process has opened the port that will be used for the debug. Investigate the cause, remove the port number duplication, and then execute the Interstage Java EE 6 DAS service start processing.

Possible causes of the duplication of the port numbers with the existing processes are shown below. Use the `list-domains` subcommand to check the operational status of the Interstage Java EE 6 DAS service.

- If the Interstage Java EE 6 DAS service is starting, take one of the following actions:
 - Cancel the Interstage Java EE 6 DAS service start processing.
 - Stop the Interstage Java EE 6 DAS service that is starting, and then reexecute start processing.
- If a non-Interstage Java EE 6 DAS service process has opened the operation management HTTP listener port number, take one of the following actions:
 - Change the port number that is opened by the non-Interstage Java EE 6 DAS service process.
When this message is output, even though the Interstage Java EE 6 DAS service operational status is "stopped", it may mean an invalid Interstage Java EE 6 DAS service process still remains. Refer to "[Interstage Java EE 6 DAS Service Process Recovery Procedure](#)", and then collect the Interstage Java EE 6 DAS service processes.
 - Change the port number that is opened by the Interstage Java EE 6 DAS service.
Refer to "[Changing the Debug Port Number](#)".

HTTP connection failed with code 403, message: Configuration access to an instance is not allowed; please connect to the domain admin server instead to make configuration changes

Explanation

Failed to communicate with the server instance.

System Action

Processing is interrupted.

User Action

If this message is output after the Java EE 6 resources are imported, the certificate used in operation management may not have been migrated. Refer to "[11.13 Errors that Occur after Restoring/Importing Java EE 6 Resources](#)" - "[IJSERVER CLUSTER AND SERVER INSTANCE STARTS, BUT OPERATIONS USING THE ASADMIN COMMAND FAIL, OR AN ERROR MESSAGE IS OUTPUT](#)", and then take the required action.

Illegal command name: {0}

Variable Information

{0}: Subcommand name

Explanation

The subcommand name is invalid.

System Action

Processing is interrupted.

User Action

Specify the correct subcommand name, and then reexecute the command.

Incorrect current master password. You will not be able to change it.

Explanation

The specified current master password is invalid.

System Action

Processing is interrupted.

User Action

Specify the correct current master password.

Instance {0} seems to be offline; command {1} was not replicated to that instance

Variable Information

{0}: Server instance name

{1}: Subcommand name

Explanation

The server instance is not running, therefore the synchronization processing could not be performed.

System Action

Processing is continued.

User Action

Not required.

The synchronization processing will be performed automatically when the server instance starts the next time.

Invalid boolean value for option: {0}, Value: {1}

Variable Information

{0}: Option name
{1}: Specified value

Explanation

The value that was specified as the "Bool" value option was neither "true" nor "false", therefore execution of the command failed.

System Action

Processing is interrupted.

User Action

Specify the correct value in the option, and then reexecute the command.

Invalid file for option: --{0}: {1}

Variable Information

{0}: Option name
{1}: Cause of the error

Explanation

Cannot reference the file, therefore execution of the command failed.

System Action

Processing is interrupted.

User Action

Check if the file displayed in Variable Information exists and whether there are sufficient access privileges, and then reexecute the command.

Invalid option: {0}

Variable Information

{0}: Option name

Explanation

An invalid option was specified, therefore execution of the command failed.

System Action

Processing is interrupted.

User Action

Specify the correct option, and then reexecute the command.

javax.net.ssl.SSLHandshakeException: Remote host closed connection during handshake

Explanation

Failed to communicate with the server instance.

System Action

Processing is interrupted.

User Action

If this message is output after the Java EE 6 resources are imported, the certificate used in operation management may not have been migrated. Refer to "[11.13 Errors that Occur after Restoring/Importing Java EE 6 Resources](#)" - "[IIServer Cluster and Server Instance Starts, but Operations Using the asadmin Command Fail, or an Error Message Is Output](#)", and then take the required action.

Login information is not saved for host name [{0}] and port [{1}]

Variable Information

{0}: Host name

{1}: Port name

Explanation

The login information was not saved.

System Action

Processing is interrupted.

Login information for PCMI service is not saved. domainsPath={0}, pcmiPath={1}

Variable Information

{0}: Detail information

{1}: Detail information

Explanation

Failed to retrieve the installation path of the PCMI instance, so the PCMI service cannot be used.

System Action

Processing is continued.

User Action

- Reexecute the command with system administrator privileges (if the service operator user was changed, then reexecute the command with service operator user privileges).
- The JVM option "-Dcom.fujitsu.interstage.pcmi.instancePath=\${AS_JAVAAEE6_SHARED_DIR}/pcmi/isje6", which is used in the Java EE 6 operating environment, has been deleted. Add this JVM option to the Interstage Java EE 6 DAS service. For details on the JVM options defined by default, refer to "[7.7.14 Java VM Definition Items](#)".

Missing value for option: {0}

Variable Information

{0}: Option name

Explanation

The option value was not specified, therefore execution of the command failed.

System Action

Processing is interrupted.

User Action

Specify the correct option value, and then reexecute the command.

No jvm-options were deleted (perhaps they never existed in the configuration)

Explanation

The specified jvm-options have never existed.

System Action

Processing is continued.

Node directory {0} does not exist or is not a directory

Variable Information

{0}: Node name

Explanation

The specified server instance does not exist.

System Action

Processing is interrupted.

User Action

Check if the specified server instance exists.

Option {0} is required but was not specified

Variable Information

{0}: Option name

Explanation

The option value was not specified, therefore execution of the command failed.

System Action

Processing is interrupted.

User Action

Specify the option displayed in Variable Information, and then reexecute the command.

Solaris32/64 Linux32/64

Check if the string specified in the command option contains spaces.

If the specified string contains spaces, delete the spaces, and then reexecute the command.

For details, refer to "[Specifying a character string including a space](#)".

remote failure: {0}: Could not start instance {0} on node {1} ({2}).

Variable Information

{0}: Instance name

{1}: Node name

{2}: Host name

Explanation

Failed to start the server instance.

System Action

Processing is interrupted.

User Action

An error occurred during start processing of the server instance.

Take the action indicated by the message output at the same time and the message output to the event log (Windows(R)) or the system log (Solaris/Linux), and investigate the cause of the server instance start failure.

If a message has not been output, investigate the cause of the failure based on the information output to the server instance server log and the Java VM log.

remote failure: A MailResource by name {0} already exists with resource-ref in target server.

Variable Information

{0}: JNDI name

Explanation

The specified JNDI name JavaMail session already exists.

System Action

Processing is interrupted.

User Action

Specify the correct JNDI name, and then reexecute the command.

remote failure: A security map named {0} for connector connection pool {1} does not exist.

Variable Information

{0}: Security map name

{1}: Connector connection pool name

Explanation

The specified connector connection pool security map does not exist.

System Action

Processing is interrupted.

User Action

Check the security map name, and then reexecute the command.

remote failure: A work-security-map can have either (any number of) group mapping or (any number of) principals mapping but not both. Specify --principals or --usergroups.

Explanation

Both the --principals and --usergroups options were specified.

System Action

Processing is interrupted.

User Action

Specify the --principals option or the --usergroups option, and then reexecute the command.

remote failure: Adding User {0} to file realm {1} failed. {2}

Variable Information

{0}: User name

{1}: file realm name

{2}: Detail information

Explanation

Failed to create the file realm user.

System Action

Processing is interrupted.

User Action

Possible causes are as follows:

- If the following string is contained in Detail information, it means that the specified user name exists already exists
- If the following string is contained in Detail information, it means that the specified file realm user password contains white space.
The password cannot contain white space.
Invalid surrounding whitespace in password
- If the following string is contained in Detail information, it means that the specified user name contains characters that cannot be used.
Invalid characters in name

Specify the correct value, and then reexecute the command.

**remote failure: Adding User to file realm {0} failed. User name cannot be empty.
User name cannot be empty.**

Variable Information

{0}: file realm name

Explanation

The user name that is specified when the file realm user is created cannot be empty.

System Action

Processing is interrupted.

User Action

Specify the correct user name, and then reexecute the command.

remote failure: Authrealm named {0} exists. Cannot add duplicate Authrealm.

Variable Information

{0}: Realm name

Explanation

The specified realm name already exists.

System Action

Processing is interrupted.

User Action

Specify the correct realm name, and then reexecute the command.

remote failure: Authrealm named {0} not found.

Variable Information

{0}: Realm name

Explanation

The realm name does not exist.

System Action

Processing is interrupted.

User Action

Specify the correct realm name, and then reexecute the command.

remote failure: Cannot change a primary key Change of {0}

Variable Information

{0}: Definition name

Explanation

The specified item cannot be changed after the definition has been created.

System Action

Processing is interrupted.

User Action

To change the specified item value, delete the definition, and then create the definition again.

remote failure: Could not change the attributes: {0}

Variable Information

{0}: Error content

Explanation

Failed to change the specified definition value.

System Action

Processing is interrupted.

User Action

Based on the message displayed in Variable Information, remove the cause of the error, and then reexecute the command.

remote failure: Could not change the attributes: Constraints for this MailResource configuration have been violated: on property [{0}] violation reason [{1}]

Variable Information

{0}: Property
{1}: Cause of the error

Explanation

Failed to set the JavaMail session definition.

System Action

Processing is interrupted.

User Action

Specify the correct value, and then reexecute the command.

remote failure: Could not change the attributes: javax.validation.ConstraintViolationException: Constraints for this MailResource configuration have been violated: on property [{0}] violation reason [{1}]

Variable Information

{0}: Property
{1}: Cause of the error

Explanation

Failed to set the JavaMail session definition.

System Action

Processing is interrupted.

User Action

Specify the correct value, and then reexecute the command.

remote failure: Creation of Authrealm {0} failed. {1}

Variable Information

{0}: Realm name

{1}: Detail information

Explanation

Failed to create the realm.

System Action

Processing is interrupted.

User Action

Possible causes are as follows:

- If the following string is contained in Detail information, it means that the specified realm name contains characters that cannot be used.
Constraints for this AuthRealm configuration have been violated
- If the following string is contained in Detail information, it means that the specified implementation class is invalid.
java.lang.ClassNotFoundException:
- If the following string is contained in Detail information, it means that the JAAS context realm additional property was not specified.
login module not specified
- If the following string is contained in Detail information, it means that the key file realm additional property was not specified.
file not specified.

Specify the correct value, and then reexecute the command.

remote failure: Creation of Password Alias {0} failed Empty key Empty Key

Variable Information

{0}: Password alias name

Explanation

The password specified when the password alias was created contains null characters.

System Action

Processing is interrupted.

User Action

Specify a password, and then reexecute the command.

remote failure: Dotted name path {0} not found.

Variable Information

{0}: Definition name

Explanation

The specified definition name does not exist, therefore the operation failed.

System Action

Processing is interrupted.

User Action

Specify a definition name that exists, and then reexecute the operation.

remote failure: Either the principal or the user group has to be specified while creating a security map. Both cannot be null.

Explanation

Neither the --principals nor the --usergroups option was specified.

System Action

Processing is interrupted.

User Action

Specify the --principals option or the --usergroups option, and then reexecute the command.

remote failure: Failed to add principals to a security map with user groups.

Explanation

Both the --addprincipals and --addusergroups options were specified.

System Action

Processing is interrupted.

User Action

Specify the --addprincipals option or the --addusergroups option, and then reexecute the command.

remote failure: Failed to create lifecycle module: {0}

Variable Information

{0}: Error content

Explanation

Failed to create the lifecycle module.

System Action

Processing is interrupted.

User Action

Remove the cause of the error based on messages displayed in Variable Information, and reexecute the command.

remote failure: File realm {0} does not exist.

Variable Information

{0}: file realm name

Explanation

The file realm name does not exist.

System Action

Processing is interrupted.

User Action

Specify the correct file realm name, and then reexecute the command.

remote failure: Invalid logger level found {0}. Valid levels are: SEVERE, WARNING, INFO, FINE, FINER, FINEST

Variable Information

{0}: Log level

Explanation

The specified log level is invalid.

System Action

Processing is interrupted.

User Action

Specify the correct log level, and then reexecute the command.

remote failure: Invalid logging attribute name found {0}.

Variable Information

{0}: Attribute name

Explanation

The specified attribute name cannot be specified.

System Action

Processing is interrupted.

User Action

Specify the correct attribute name, and then reexecute the command.

remote failure: Invalid name value pair {0}. Missing expected equal sign.

Variable Information

{0}: Definition name

Explanation

"=" was not specified.

System Action

Processing is interrupted.

User Action

Specify a correct definition, and then reexecute the operation.

For details, refer to ["9.1.4.2 set Subcommand"](#).

remote failure: Invalid parameter: {0}. Its value is {1} but it isn't one of these acceptable values: {2}

Variable Information

{0}: Parameter name

{1}: Value that is set

{2}: List of acceptable values

Explanation

The value that was set is invalid.

System Action

Processing is interrupted.

User Action

Specify a string that only includes acceptable values.

remote failure: Invalid property syntax: {0}

Variable Information

{0}: Error content

Explanation

The specified property format is invalid, therefore execution of the command failed.

System Action

Processing is interrupted.

User Action

Review the property format, and then reexecute the command.

remote failure: Invalid property syntax, missing property value: {0}=Invalid property syntax, missing property value: {0}=

Variable Information

{0}: Attribute name

Explanation

The attribute value cannot be omitted.

System Action

Processing is interrupted.

User Action

Specify the correct attribute value, and then reexecute the command.

remote failure: JVM option {0} already exists in the configuration.

Variable Information

{0}: Specified JVM option

Explanation

The specified JVM option has already been defined, therefore execution of the command failed.

System Action

Processing is interrupted.

User Action

Check the specified JVM option, and then reexecute the command.

To change a JVM option that has already been defined, first delete the JVM option then create the JVM option again.

remote failure: JVM option {0} is invalid because it does not start with a "-"

Variable Information

{0}: Value specified for the option

Explanation

An invalid JVM option was specified.

System Action

Processing is interrupted.

User Action

Specify a string that starts with a hyphen ("-") as the JVM option, and then reexecute the operation.

remote failure: Missing expected dotted name part

Explanation

The definition that was specified is invalid.

System Action

Processing is interrupted.

User Action

Specify a correct definition, and then reexecute the operation.

remote failure: No configuration found for {0}

Variable Information

{0}: Definition name

Explanation

The specified definition name does not exist, therefore the operation failed.

System Action

Processing is interrupted.

User Action

- It is possible that escape may not have been performed for characters that require the command option or the operand value escape. Refer to "[Using escape characters](#)".
- Specify a definition name that exists, and then reexecute the operation.

remote failure: Password alias for the alias {0} does not exist.

Variable Information

{0}: Password alias name

Explanation

The specified password alias does not exist.

System Action

Processing is interrupted.

User Action

Check the password alias name, and then reexecute the command.

remote failure: Password alias with the specified name already exists. Please use the update-password-alias command to change it

Explanation

The password alias that you are attempting to create has already been created.

System Action

Processing is interrupted.

User Action

Check the password alias name, and then reexecute the command.

remote failure: Password for user {0} has to be specified in --userpassword option or supplied through AS_ADMIN_USERPASSWORD property in the file specified in --passwordfile option.

Variable Information

{0}: User name

Explanation

There were insufficient specified parameters, therefore the update of the file realm user failed.

System Action

Processing is interrupted.

User Action

Possible causes are as follows:

The file realm user password for the file that was specified in the passwordfile option has not been specified.

The passwordfile and group options were not specified. One or both must be specified.

Specify the correct value, and then reexecute the command.

remote failure: Specified connector connection pool {0} does not exist. Please specify a valid pool name.

Variable Information

{0}: Connector connection pool name

Explanation

The specified connector connection pool does not exist.

System Action

Processing is interrupted.

User Action

Specify the correct connector connection pool, and then reexecute the command.

**remote failure: Specified file user {0} not found No such user [{0}].
No such user [{0}].**

Variable Information

{0}: file realm user

Explanation

The file realm user does not exist.

System Action

Processing is interrupted.

User Action

Specify the correct file realm user, and then reexecute the command.

remote failure: The principal {0} already exists in connector connection pool {1}. Please give a different principal name.

Variable Information

{0}: Principal

{1}: Connector connection pool name

Explanation

The principal that was specified in the --addprincipals option has already been registered.

System Action

Processing is interrupted.

User Action

Check the principal, and then reexecute the command.

remote failure: The user-group {0} already exists in connector connection pool {1}. Please give a different user-group name.

Variable Information

{0}: User group

{1}: Connector connection pool name

Explanation

The user group that was specified in the --addusergroups option has already been registered.

System Action

Processing is interrupted.

User Action

Check the user group, and then reexecute the command.

remote failure: There is no cluster named {0} in this domain.

Variable Information

{0}: IJServer cluster name

Explanation

The specified IJServer cluster does not exist.

System Action

Processing is interrupted.

User Action

Check if the IJServer cluster exists.

remote failure: This value {0} is given in both --addprincipals and --removeprincipals. The same value cannot be given for these options.

Variable Information

{0}: Principal

Explanation

A principal with the same name was specified in the --addprincipals and --removeprincipals options.

System Action

Processing is interrupted.

User Action

Specify a principal with different names in the --addprincipals and --removeprincipals options, and then reexecute the command.

remote failure: This value {0} is given in both --addusergroups and --removeusergroups. The same value cannot given for these options.

Variable Information

{0}: User group

Explanation

A user group with the same name was specified in the --addusergroups and --removeusergroups options.

System Action

Processing is interrupted.

User Action

Specify a user group with different names in the --addusergroups and --removeusergroups options, and then reexecute the command.

remote failure: Unable to Delete Admin Object.

Explanation

Failed to delete the JMS send destination resources.

System Action

Processing is interrupted.

User Action

Take the following actions:

- Check if the JNDI name specified in the [delete-jms-resource Subcommand](#) is correct.
- Check if two or more reference destinations exist in the JMS send destination resources. If they exist, delete the added reference destinations using the [delete-resource-ref Subcommand](#) and then reexecute the command.
- Check if "domain" has been specified in the --target option of the [delete-jms-resource Subcommand](#). If deleting the JMS send destination resources, "domain" cannot be specified in the --target option.
- Check if any reference destinations exist in the JMS send destination resources. If none exist, delete the JMS send destination resources using the procedure below.

1. Use the [create-resource-ref Subcommand](#) to create a server at the reference destination of the JMS send destination resources you want to delete.



Example

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-resource-ref --target server jms/Queue
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-resource-ref --target server jms/Queue
```

2. Specify "server" in the --target option of the `delete-jms-resource` Subcommand, and delete the JMS send destination resources.

Example

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin delete-jms-resource --target server jms/Queue
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin delete-jms-resource --target server jms/Queue
```

remote failure: Unable to Delete Connector Resource.

Explanation

Failed to delete the JMS Connection Factory.

System Action

Processing is interrupted.

User Action

Check if two or more reference destinations exist in the JMS Connection Factory. If they exist, delete the added reference destinations using the `delete-resource-ref` Subcommand and then reexecute the command.

remote failure: Unknown plain text format. A properly formatted response from a PlainTextActionReporter \n always starts with one of these 2 strings: PlainTextActionReporterSUCCESS or PlainTextActionReporterFAILURE. The response we received from the server was not understood: {0}

Variable Information

{0}: Response message

Explanation

The response that was received is invalid.

System Action

Processing is interrupted.

User Action

Based on the message that was output at the same time, remove the cause of the error, and then reexecute the command.

remote failure: Updating user {0} in file realm {1} failed. {2}

Variable Information

{0}: User name

{1}: file realm name

{2}: Detail information

Explanation

Failed to update the file realm user.

System Action

Processing is interrupted.

User Action

Possible causes are as follows:

- If the following string is contained in Detail information, it means that the specified group list contains characters that cannot be used.
Invalid characters in group
- If the following string is contained in Detail information, it means that the specified user does not exist.
No such user

Specify the correct value, and then reexecute the command.

**remote failure: Updating user in file realm {0} failed. User name cannot be empty.
User name cannot be empty.**

Variable Information

{0}: file realm name

Explanation

The user name that is specified when the file realm user is updated cannot be empty.

System Action

Processing is interrupted.

User Action

Specify the correct user name, and then reexecute the command.

**remote failure: User {0} does not exist in file realm {1}. No such user [{0}].
No such user [{0}].**

Variable Information

{0}: User name

{1}: file realm name

Explanation

The file realm user does not exist.

System Action

Processing is interrupted.

User Action

Specify the correct file realm user, and then reexecute the command.

**Remote server does not listen for requests on [localhost:{0}]. Is the server up?
No such local command, {1}. To run remote commands, start the application server (e.g. 'asadmin start-domain').**

Variable Information

{0}: Port number

{1}: Subcommand name

Explanation

The server is not running using the specified port number.

System Action

Processing is interrupted.

User Action

Start the Interstage JavaEE 6 DAS service, or specify the correct port number, and then reexecute the command.

Repeats not allowed for option: {0}

Variable Information

{0}: Option name

Explanation

The option name was duplicated.

System Action

Processing is interrupted.

User Action

Deleted the duplicated option, and then reexecute the command.

Server {0} is running. You need to stop the instance before the master-password can be changed.

Variable Information

{0}: Server instance name

Explanation

The server instance has not stopped.

System Action

Processing is interrupted.

User Action

Stop the server instance.

Server instance directory {0} does not exist or is not a directory

Variable Information

{0}: Server instance path

Explanation

The specified server instance does not exist.

System Action

Processing is interrupted.

User Action

The specified server instance does not exist.

Something went wrong in creating the local filesystem for instance {1}: {2}

Variable Information

{0}: Server instance name

{1}: Error information

Explanation

Failed to create the server instance.

System Action

Processing is interrupted.

User Action

Refer to the error information message output at the same time, and then take the action indicated.

System Property named {0} deleted from given target server. Make sure you check its references.

Variable Information

{0}: Property name

Explanation

The specified property was deleted.

System Action

Processing is continued.

The command {0} failed for: {1}

Variable Information

{0}: Subcommand name

{1}: Instance name

Explanation

Failed to execute the subcommand {0}.

System Action

Processing is interrupted.

User Action

Take the action indicated by the message output at the same time, remove the cause of command execution failure, and then reexecute the command.

**The domains directory {0} contains multiple domains. Please specify a domain.
Available domains: {1}**

Variable Information

{0}: Directory that stores the files used by the Interstage Java EE 6 DAS service

{1}: Name of existing directory

Explanation

There are multiple directories that store the files that are used by the Interstage Java EE 6 DAS service.

System Action

Processing is interrupted.

User Action

Move or delete all directories except those in domain1.

The instance does not exist on this machine.

Explanation

The specified server instance does not exist.

System Action

Processing is interrupted.

User Action

Check if the specified server instance exists.

The instance install path of PCMI service is set to an invalid value. Invalid value={0}.

Variable Information

{0}: Instance installation path

Explanation

Failed to retrieve the installation path of the PCMI instance, so the PCMI service cannot be used.

System Action

Processing is continued.

User Action

The JVM option "-Dcom.fujitsu.interstage.pcmi.instancePath=\${AS_JAVAAEE6_SHARED_DIR}/pcmi/isje6", which is used in the Java EE 6 operating environment, has been deleted. Add this JVM option to the Interstage Java EE 6 DAS service or the IJServer cluster. For details on the JVM options defined by default, refer to "[7.7.14 Java VM Definition Items](#)".

The master password is incorrect.

Explanation

The master-password file does not exist. Alternatively, the master password defined in the file that is specified in the --passwordfile option is incorrect.

System Action

Processing is interrupted.

User Action

If the master-password file does not exist, either save the master password in the file using the change-master-password subcommand, or use the --passwordfile option.

If the --passwordfile option is specified, check whether the master password defined in the file is correct.

For details, refer to "[9.1.17.2 change-master-password Subcommand](#)".

There are no domains in {0}

Variable Information

{0}: Directory that stores the files used by the Interstage Java EE 6 DAS service

Explanation

There are no files that are used by the Interstage Java EE 6 DAS service.

System Action

Processing is interrupted.

User Action

The product environment has been corrupted, therefore reinstall the product.

There is a process already using the admin port {0} -- it probably is another instance of a GlassFish server.**Variable Information**

{0}: Operation management HTTP listener port number

Explanation

There is a process that has opened the port number used by the operation management HTTP listener.

System Action

Processing is interrupted.

User Action

Investigate the cause of the opening of the operation management HTTP listener by the other process. Remove the port number duplication, and then execute the Interstage Java EE 6 DAS service or server instance start processing.

The following scenarios may cause duplication of the operation management HTTP listener port of the Interstage Java EE 6 DAS service and the port number of an existing process. Use the list-domains subcommand to check the operational status of the Interstage Java EE 6 DAS service.

- If the Interstage Java EE 6 DAS service is starting, take the following actions:
 - Stop the Interstage Java EE 6 DAS service that is starting, and then reexecute start processing.
- If a non-Interstage Java EE 6 DAS service process has opened the operation management HTTP listener port, take one of the following actions:
 - Change the port that is opened by the non-Interstage Java EE 6 DAS service process.
When this message is output, even though the Interstage Java EE 6 DAS service operational status is "stopped", it may mean an invalid Interstage Java EE 6 DAS service process still remains. Refer to "[Interstage Java EE 6 DAS Service Process Recovery Procedure](#)", and then collect the Interstage Java EE 6 DAS service processes.
 - Change the port that is opened by the Interstage Java EE 6 DAS service.
Refer to "[Changing the Operation Management HTTP Listener Port Number](#)".

The following scenarios may cause duplication of the operation management HTTP listener port of the server instance and the port number of an existing process. Use the list-instances subcommand to check the operational status of the server instance.

- If the server instance is running, take the following actions:
 - Stop the server instance, and then reexecute the start processing.
- If another server instance or process has opened the operation management HTTP listener port, take one of the following actions:
 - Change the port opened by the other server instance or process.
 - Change the port opened by this server instance.

There is no such domain directory: {0}**Variable Information**

{0}: Directory that stores the files used by the Interstage Java EE 6 DAS service

Explanation

The specified domain does not exist.

System Action

Processing is interrupted.

User Action

Omit the start-domain subcommand operand, or specify domain1.

**The server exited prematurely with exit code {0}.
Before it died, it produced the following output:
{1}**

Variable Information

{0}: Return value

{1}: Message output by the Interstage Java EE 6 DAS service

Explanation

During start processing, the Interstage Java EE 6 DAS service ended with return value {0}.

System Action

Processing is interrupted.

User Action

Refer to {1}, and remove the cause of the Interstage Java EE 6 DAS service start processing failure.

WARNING: Command {0} did not complete successfully on server instance {1}: {2}

Variable Information

{0}:Command name

{1}: Server instance name

{2}: Exception information

Explanation

The command has failed to execute.

System Action

Processing is interrupted.

User Action

If the exception information output at the same time contains the string "java.net.SocketException: No buffer space available (maximum connections reached?)", the ephemeral ports may be depleted.

Refer to "[10.43.23 Exception Information that Starts with "java.net.SocketException"](#)" - "java.net.SocketException: No buffer space available (maximum connections reached?)", and then take the required action.

You must restart all running servers for the change in secure admin to take effect.

Explanation

Changes have been made to enable or disable SSL encrypted communication using the asadmin command. The Interstage Java EE 6 DAS service must be restarted to make the changes to enable or disable SSL encrypted communication effective.

System Action

Processing is continued.

User Action

To make the changes to enable or disable SSL encrypted communication using the asadmin command effective, restart the Interstage Java EE 6 DAS service immediately. If there are any server instances running, restart them as well.

10.43.2 Messages that are Output during PCMI Operations

error occured while initializing PcmiTraceLogFilehandler

Explanation

An error occurred during trace log file initialization.

System Action

Processing is continued.

User Action

Privileges to execute commands may not have been set for the user who executed the command. Check the user's privileges and if the user does not have command execution privileges, reexecute the command as the user who has command execution privileges.

If this message continues to be output despite taking the above action, collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

10.43.3 Messages that are Output during Context and Dependency Injection (CDI) Operations

[org.jboss.weld.context.NonexistentConversationException: {0}](#)

Variable Information

{0}: Detail information

Explanation

The Conversation scope does not exist.

System Action

Processing is interrupted.

User Action

Follow the action advised in Detail information.

[org.jboss.weld.exceptions.AmbiguousResolutionException: {0}](#)

Variable Information

{0}: Detail information

Explanation

There are multiple classes that can be injected.

System Action

Processing is interrupted.

User Action

Follow the action advised in Detail information.

[org.jboss.weld.exceptions.DefinitionException: {0}](#)

Variable Information

{0}: Detail information

Explanation

The CDI definition is incorrect.

System Action

Processing is interrupted.

User Action

Follow the action advised in Detail information.

org.jboss.weld.exceptions.DeploymentException: {0}**Variable Information**

{0}: Detail information

Explanation

A CDI-related exception occurred during deployment.

System Action

Processing is interrupted.

User Action

Follow the action advised in Detail information.

10.43.4 Messages that are Output during EJB Operations

NRU-{0} : Cannot load from BACKUPSTORE FOR Key: <{1}>**Variable Information**

{0}: Bean class name

{1}: Session ID

Explanation

The session that was called cannot be loaded from the session store that was backed up. The session information stored in the session store was deleted by the stateful session bean instance non-communication time monitoring feature.

System Action

An exception is returned to the caller.

User Action

Reexecute processing from the lookup method call.

10.43.5 Messages that are Output during JAX-RS Operations

INFO: Provider classes found: {0}**Variable Information**

{0}: JAX-RS provider classes

Explanation

JAX-RS provider classes were detected.

INFO: Root resource classes found: {0}**Variable Information**

{0}: Root resource classes

Explanation

Root resource classes were detected.

10.43.6 Messages that are Output during JMS Operations

addConsumer: Add consumer failed. Connection ID: {0}, session ID: {1}:**Variable Information**

{0}: Connection ID
{1}: Session ID

Explanation

Failed to create the consumer.

System Action

Processing is continued.

User Action

Refer to the message output immediately after this message, and then take the required action.

Arguments: {0}**Variable Information**

{0}: Message broker start option

Explanation

The message broker is starting using the start option ({0}).

Authentication failed for username {0} in service {1}:{2}**Variable Information**

{0}: User name
{1}: Connection service name
{2}: Detail information

Explanation

User authentication failed.

System Action

Processing is continued.

User Action

Follow the action advised in the message output at Variable Information {2}.

browseMessages on JMSService:{0} failed for connectionId:{1} and sessionId:{2} due to {3}**Variable Information**

{0}: Connection service name
{1}: Connection ID
{2}: Session ID
{3}: Detail information

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 one of the following actions:

- Check if the user and the password defined in JMS Connection Factory are correct.
For details on the JMS Connection Factory definition items, refer to "[7.5.3 JMS Connection Factory Definition Items](#)".
- Check if the user and the password specified in ConnectionFactory.createConnection of the web application or EJB application are correct.
- Check if the execution privileges for the user and the group that the user belongs to are correctly defined for the following:
 - JMS Connection Factory definition items
 - Web application or EJB application

The user being used and the group that the user belongs to can be checked by using the imqusermgr list subcommand. For details on the command, refer to "[9.8.4 list Subcommand](#)". Alternatively, for details on the execution privileges for the user and the group that the user belongs to, refer to "[5.8.2 Access Control Properties File](#)".

conflict w/ clientID

Explanation

A client ID that is being used in another connection cannot be specified.

System Action

Processing is continued.

User Action

Specify a client ID that is not being used in another connection.

createConsumer on JMSService:{0} failed for connectionId:{1} and sessionId:{2} due to {3}

Variable Information

- {0}: Connection service name
- {1}: Connection ID
- {2}: Session ID
- {3}: Detail information

Explanation

Consumer creation failed due to lack of consumer creation permission.

System Action

Processing is continued.

User Action

Take one of the following actions:

- Check if the user and the password defined in JMS Connection Factory are correct.
For details on the JMS Connection Factory definition items, refer to "[7.5.3 JMS Connection Factory Definition Items](#)".
- Check if the user and the password specified in ConnectionFactory.createConnection of the web application or EJB application are correct.
- Check if the execution privileges for the user and the group that the user belongs to are correctly defined for the following:
 - JMS Connection Factory definition items
 - Web application or EJB application

The user being used and the group that the user belongs to can be checked by using the `imqusermgr list` subcommand. For details on the command, refer to ["9.8.4 list Subcommand"](#). Alternatively, for details on the execution privileges for the user and the group that the user belongs to, refer to ["5.8.2 Access Control Properties File"](#).

createProducer on JMSService:{0} failed for connectionId:{1} and sessionId:{2} due to {3}

Variable Information

{0}: Connection service name
{1}: Connection ID
{2}: Session ID
{3}: Detail information

Explanation

Producer creation failed due to lack of producer creation permission.

System Action

Processing is continued.

User Action

Take one of the following actions:

- Check if the user and the password defined in JMS Connection Factory are correct.
For details on the JMS Connection Factory definition items, refer to ["7.5.3 JMS Connection Factory Definition Items"](#).
- Check if the user and the password specified in `ConnectionFactory.createConnection` of the web application or EJB application are correct.
- Check if the execution privileges for the user and the group that the user belongs to are correctly defined for the following:
 - JMS Connection Factory definition items
 - Web application or EJB application

The user being used and the group that the user belongs to can be checked by using the `imqusermgr list` subcommand. For details on the command, refer to ["9.8.4 list Subcommand"](#). Alternatively, for details on the execution privileges for the user and the group that the user belongs to, refer to ["5.8.2 Access Control Properties File"](#).

Failed to create default files:

Explanation

Failed to create the message broker material.

System Action

Processing is interrupted.

User Action

Collect the problem investigation data using the `iscollectinfo` command and [contact Fujitsu technical support](#).

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 displayed in Variable Information has been used.

JMS resource not created : {0}

Variable Information

{0}: Destination resource name

Explanation

The destination resource referenced by the message-driven bean application has not been created.

System Action

Processing is continued.

User Action

Create the destination resource with the destination resource name in {0}.

JMX Connector Server {0} started successfully with url {1}

Variable Information

{0}: Service name

{1}: URL information

Explanation

The JMX connector server was started.

JMX Connector Server {0} stopped successfully

Variable Information

{0}: Service name

Explanation

The JMX connector server was stopped.

Loading stored durable {0}:{1}

Variable Information

{0}: Client ID

{1}: Subscriber DN (Distinguished Name)

Explanation

The client ID ({0}) and subscriber DN ({1}) are being loaded.

not routing expired message on transaction log replay {0}

Variable Information

{0}: Message ID

Explanation

The message ({0}) has exceeded the keepalive time, therefore it will be destroyed.

Removing all instance data...

Explanation

The message broker material is being removed.

setClientId: set client ID failed. Connection ID: {0}, Client ID: {1}, Shareable: {2}, nameSpace: {3}

Variable Information

{0}: Connection ID
{1}: Client ID
{2}: Internal information1
{3}: Internal information2

Explanation

Failed to set the client ID ({1}).

System Action

Processing is continued.

User Action

Check if the client ID ({1}) is being used.

Unable to create destination: {0}, because {1}

Variable Information

{0}: Physical storage destination name
{1}: Detail information

Explanation

Failed to create the physical storage destination for the reason in Detail information ({1}).

System Action

Processing is continued.

User Action

Refer to Detail information ({1}), and then take the required action.

Using built-in file-based persistent store: {0}

Variable Information

{0}: Message broker material storage destination

Explanation

The message broker material storage destination ({0}) is being used.

WARNING Existing file: incompleteTxnStorehas older cookie version than current version. {0}

Variable Information

{0}: Internal information

Explanation

The data store transaction information will be updated.

System Action

Processing is continued.

User Action

Not required.

10.43.7 Messages that are Output during JPA Operations

WARNING: JMX MBeanServer in use: [{0}] from index [{1}]

Variable Information

{0}: MBeanServer class name

{1}: Internal information

Explanation

The MBeanServer in {0} has been registered.

System Action

Processing is continued.

User Action

Not required.

WARNING: Multiple [{0}] JMX MBeanServer instances exist, we will use the server at index [{1}] : [{2}].

Variable Information

{0}: Internal information

{1}: Internal information

{2}: MBeanServer class name

Explanation

The MBeanServer in {2} will be used.

System Action

Processing is continued.

User Action

Not required.

WARNING: The DatabaseSession has an external transaction controller defined by something other than the ServerPlatform. EclipseLink will permit the override of the external transaction controller, but we recommend you consider the alternative of subclassing [org.eclipse.persistence.platform.server.ServerPlatformBase](#) and override [getExternalTransactionControllerClass\(\)](#).

Explanation

The external transaction controller was not cleared.

System Action

Processing is continued.

User Action

Not required.

10.43.8 Messages that are Output during Web Container Operations

SEVERE: Cannot find port information from domain.xml

Explanation

A port number has not been specified for the HTTP listener.

System Action

Processing to set the port number is interrupted.

User Action

There is no HTTP listener port number setting in domain.xml.

For IJServer clusters, set the HTTP listener port number using the asadmin command.

For the Interstage Java EE 6 DAS service, refer to "[Unable to Operate or Start due to Errors in HTTP Listener Settings](#)" and then take the required action.

WARNING: Can not parse network-listener port number: null

Explanation

A port number has not been specified for the HTTP listener.

System Action

Processing to set the port number is interrupted.

User Action

There is no HTTP listener port number setting in domain.xml.

For IJServer clusters, set the HTTP listener port number using the asadmin command.

For the Interstage Java EE 6 DAS service, refer to "[Unable to Operate or Start due to Errors in HTTP Listener Settings](#)" and then take the required action.

SEVERE: Config Listener class com.sun.enterprise.v3.services.impl.DynamicConfigListener notification took too long java.util.concurrent.TimeoutException

Explanation

Failed to initialize the HTTP listener.

System Action

Initialization of the HTTP listener is interrupted.

User Action

- The value specified for the HTTP listener port number may be incorrect. Check if the value set for the HTTP listener port number is correct.
- Check if this can be avoided by restarting the process.

SEVERE: doSelect exception java.lang.IllegalArgumentException: corePoolSize > maxPoolSize: {0} > {1}

Variable Information

{0}: Minimum pool size

{1}: Maximum pool size

Explanation

The minimum pool size has exceeded the maximum pool size.

System Action

The request is not processed.

User Action

Configure the setting so that the value of the minimum pool size does not exceed the value of the maximum pool size.

SEVERE: doSelect exception

java.util.concurrent.RejectedExecutionException: The thread pool's task queue is full, limit: {0}

Variable Information

{0}: Queue size

Explanation

The web container thread pool queue is full, therefore the request cannot be processed.

System Action

The request is not processed.

User Action

Increase the queue size for the thread pool definition item, and check if this event is resolved.

Exception in grizzly thread

java.lang.IllegalArgumentException: Invalid range

Explanation

The value that was specified for the HTTP listener port number is invalid.

System Action

Processing to set the port number is interrupted.

User Action

If this message is output, it indicates that the HTTP listener status is invalid.

For the Interstage Java EE 6 DAS service, stop the service, refer to "[Unable to Operate or Start due to Errors in HTTP Listener Settings](#)", and correctly configure the HTTP listener port number. For IJServer clusters, set the HTTP listener port number using the asadmin command.

SEVERE: Exception while processing config bean changes :

java.lang.NumberFormatException: null

Explanation

A port number has not been specified for the HTTP listener.

System Action

Processing to set the port number is interrupted.

User Action

There is no HTTP listener port number setting in domain.xml.

For IJServer clusters, set the HTTP listener port number using the asadmin command.

For the Interstage Java EE 6 DAS service, refer to "[Unable to Operate or Start due to Errors in HTTP Listener Settings](#)" and then take the required action.

INFO: Grizzly Framework {0} started in: {1}ms - bound to [{2}:{3}]**Variable Information**

{0}: Internal information
{1}: Internal information
{2}: IP address
{3}: Port number

Explanation

The port number settings have been configured.

System Action

Processing is continued.

User Action

Not required.

WARNING: Invalid address for {0}: {1}**Variable Information**

{0}: Listener name
{1}: Network address

Explanation

The network address is invalid.

System Action

Processing is continued.

User Action

Ensure that the network address of the HTTP listener is valid.

INFO: JACC Policy Provider:Failed Permission Check: {0}**Variable Information**

{0}: Detail information

Explanation

An attempt to call a method without the required privileges was made.

System Action

Processing is interrupted.

User Action

Possible causes are as follows:

- The security role name specified in the deployment descriptor (web.xml) is empty
- The definition for the transmission of the authentication information to the EJB container is invalid
- Access to the target resource by security-constraint, which is specified in the deployment descriptor (web.xml), was not authorized
In this case, no action is required because the access restriction for the resource is correct.

Based on the content of the output message, review the following definitions to remove the cause of the error and redeploy the application.

- Interstage deployment descriptor(glassfish-web.xml)

- deployment descriptor(web.xml)
- deployment descriptor(ejb-jar.xml)

WARNING: 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 attribute on the Connector.

Variable Information

{0}: Maximum value of the HTTP request parameter

Explanation

The number of HTTP request parameters has exceeded the maximum value {0}.

System Action

Processing is executed ignoring those parameters which have exceeded the maximum number allowed.

User Action

Review the number of HTTP request parameters required by the application, or the value set for the "[Maximum value for the number of HTTP request parameters](#)" (max-request-parameters) network configuration definition item.

**SEVERE: Network listener configuration error. Type: CHANGE
java.lang.RuntimeException: Cannot find port information from domain configuration**

Explanation

A port number has not been specified for the HTTP listener.

System Action

Processing to set the port number is interrupted.

User Action

There is no HTTP listener port number setting in domain.xml.

For IJServer clusters, set the HTTP listener port number using the asadmin command.

For the Interstage Java EE 6 DAS service, refer to "[Unable to Operate or Start due to Errors in HTTP Listener Settings](#)" and then take the required action.

INFO: Network listener {0} on port {1} disabled per domain.xml

Variable Information

{0}: HTTP listener name

{1}: Port number

Explanation

The HTTP listener has been disabled.

System Action

Processing is continued.

User Action

Not required.

To enable the HTTP listener, set the "[Enabling HTTP listener](#)" network configuration definition item to "true", as described in "[7.7.3 Network Configuration Definition Items](#)".

WARNING: No Principals mapped to Role [{{0}}]

Variable Information

{0}: Security role name specified in the deployment descriptor (web.xml)

Explanation

The user or group that corresponds to the security role name specified in the deployment descriptor (web.xml) has not been defined in the Interstage deployment descriptor (glassfish-web.xml).

System Action

Processing is interrupted.

User Action

Change the Interstage deployment descriptor or deployment descriptor definition and redeploy the application.

WARNING: Realm file: com.sun.enterprise.security.auth.realm.NoSuchUserException: No such user [{0}]

Variable Information

{0}: User or group specified in the Interstage deployment descriptor (glassfish-web.xml) security-role-mapping tag

Explanation

The user or group does not exist in the file realm.

System Action

Processing is interrupted.

User Action

Not required, if the principal defined as the information to be transmitted to the EJB container is displayed in Variable Information.

Based on the content of the output message, register the user or group in the file realm, and then reexecute the process.

WARNING: Response Error during finishResponse

Explanation

An exception occurred in processing to send the response.

System Action

Processing to send the response is interrupted.

User Action

- The client may have disconnected before the web container returned the response to the client. Review the client settings.
- Follow the action advised in the exception information output at the same time to remove the cause of the error.

StandardWrapperValve[{0}]: PWC1406: Servlet.service() for servlet {1} threw exception

Variable Information

{0}: Servlet name

{1}: Servlet name

Explanation

The servlet service method returned an exception.

System Action

Processing is interrupted.

User Action

Refer to the other messages and exception information that were output at the same time, and remove the cause of the error.

Unable to call method {0} on servlet context {1}, because this servlet context has already been initialized

Variable Information

{0}: Method name

{1}: Context root

Explanation

The web application of the context root {1} has already been initialized, therefore the method {0} cannot be executed.

User Action

Change the timing for calling the method {0} to when the context is initialized.

SEVERE: Unknown address null

Explanation

The network address is invalid.

System Action

Processing is continued.

User Action

Check if the network address of the HTTP listener is invalid.

10.43.9 Messages that are Output during Application Client Container Operations

Could not create the Java virtual machine. Unrecognized option: {0}

Variable Information

{0}: Option name specified in the VMARGS environment variable

Explanation

The option specified in the VMARGS environment variable is disabled.

System Action

Processing is interrupted.

User Action

Delete the option output in the message from the VMARGS environment variable.

10.43.10 Messages that are Output during Deployment Operations

appclient module [{0}] contains characteristics of other module type: {1}

Variable Information

{0}: Client JAR file name
{1}: Module type

Explanation

The module type output to {1} may be contained in the client JAR file.

System Action

Processing is continued.

User Action

If the execution of the application has failed, check if the application configuration is correct.

Application {0} is not deployed on this target [{1}]

Variable Information

{0}: Application name
{1}: Target name

Explanation

The specified application does not exist on the target.

System Action

Processing is interrupted.

User Action

Specify the correct application name, and then reexecute processing.

Application {0} not registered

Variable Information

{0}: Application name

Explanation

The specified application does not exist.

System Action

Processing is interrupted.

User Action

Specify an application name that exists, and then reexecute processing.

Application with name [{0}] is not deployed

Variable Information

{0}: Application name

Explanation

The specified application has not been deployed.

System Action

Processing is interrupted.

User Action

Specify the correct application name, and then reexecute processing.

Application with name {0} is already registered. Either specify that redeployment must be forced, or redeploy the application. Or if this is a new deployment, pick a different name

Variable Information

{0}: Application name

Explanation

An application with the same name has already been deployed.

System Action

Processing is interrupted.

User Action

Take one of the following actions, and then reexecute processing.

- Set the force option to "true".
- Undeploy the corresponding application, and then redeploy it.
- Change the application name.

Error occurred during deployment: {0}. Please see server.log for more details.

Variable Information

{0}: Detail message

Explanation

Failed to deploy the application.

System Action

Processing is interrupted.

User Action

Take action according to the message that was output to the detail message.

If the action advised in the detail message cannot be taken, take action according to the message output to the Interstage Java EE 6 DAS service server log.

excepted application name before colon: {0}

Variable Information

{0}: Application name

Explanation

Invalid characters were specified in the application name.

System Action

Processing is interrupted.

User Action

If the application name contains a colon (":"), change the name so that there are no colons, and then redeploy the application.

excepted version identifier after colon: {0}

Variable Information

{0}: Application name

Explanation

The application name contains invalid characters.

System Action

Processing is interrupted.

User Action

If the application name contains a colon (":"), change the name so that there are no colons, and then redeploy the application.

Exception while deploying the app [{0}]

Variable Information

{0}: Application name

Explanation

An error occurred during application deployment processing.

System Action

Processing is interrupted.

User Action

Take action according to the message that was output at the same time.

File not found : {0}

Variable Information

{0}: File path

Explanation

The specified file was not found.

System Action

Processing is interrupted.

User Action

Specify a file that exists, and then reexecute processing.

Invalid module name {1}. Application {0} does not contain module with name {1}.

Variable Information

{0}: Application name

{1}: Application name

Explanation

The application ({1}) is invalid. Application {0} does not contain application {1}.

System Action

Processing is interrupted.

User Action

Specify an application name that exists, and then reexecute processing.

Invalid type option value.

Explanation

The specified module type is invalid.

System Action

Processing is interrupted.

User Action

Specify a correct module type, and then reexecute processing.

Invalid url patterns: {0}.

Variable Information

{0}: Values specified in the urlPatterns attribute

Explanation

Invalid url patterns are specified in the annotation.

System Action

Processing is interrupted.

User Action

Correct the urlPatterns attribute specified in the annotation.

Invalid url patterns for {0}: {1}.

Variable Information

{0}: Class name

{1}: Values specified in the urlPatterns attribute

Explanation

Invalid urlPatterns attribute is specified in the annotation.

System Action

Processing is interrupted.

User Action

Correct the urlPatterns attribute specified in the annotation.

One cannot specify DENY with a non-empty array of rolesAllowed in @ServletSecurity / ServletSecurityElement

Explanation

A rolesAllowed attribute that specifies a non-empty array and a value attribute that specifies DENY cannot be simultaneously used in HttpConstraint within the @ServletSecurity annotation.

System Action

Processing is interrupted.

User Action

Review the @HttpConstraint annotation specified in the @ServletSecurity annotation. If specifying the rolesAllowed attribute, do not specify DENY in the value attribute.

Target ejb {0} for remote ejb 3.0 reference {1} does not expose a remote business interface of type {2}.**Variable Information**

- {0}: EJB application injection destination class name
- {1}: Name of the field on the injection destination Java EE application client
- {2}: Business interface name

Explanation

The business interface to be injected is not a remote business interface.

System Action

Processing is interrupted.

User Action

- When the Java EE application client references the EJB application using a local call
Change the EJB application to the remote call.
- When the EJB application that is referenced by the Java EE application client using a remote call references another EJB application using a local call
Change the EJB application that is referenced using the local call to the remote call. Alternatively, use the JNDI lookup method to obtain the EJB application that is referenced using the local call.

SEVERE: The Class {0} having annotation javax.servlet.annotation.WebListener need to implement one of the following interfaces: javax.servlet.ServletContextLisener, javax.servlet.ServletContextAttributeListener, javax.servlet.ServletRequestListener, javax.servlet.ServletRequestAttributeListener, javax.servlet.http.HttpSessionListener, javax.servlet.http.HttpSessionAttributeListener.**Variable Information**

- {0}: Class name

Explanation

Although the class {0} contains the @WebListener annotation, the listener has not been implemented.

User Action

When assigning the @WebListener annotation to a class, you should implement the listener.

SEVERE: The Class {0} having annotation {1} need to be a derived class of {2}.**Variable Information**

- {0}: Class name
- {1}: Annotation
- {2}: Class name

Explanation

The class {0}, which has the annotation {1} attached, must be a subclass of the class {2}.

System Action

Processing is continued.

User Action

A subclass of HttpServlet is required if you are using the @WebServlet annotation. Review the class {0}.

SEVERE: The Class {0} having annotation {1} need to implement the interface {2}.**Variable Information**

{0}: Class name
{1}: Annotation
{2}: Interface name

Explanation

The class {0}, which has the annotation {1} attached, must implement the interface {2}.

System Action

Processing is continued.

User Action

When using the @WebFilter annotation, you should implement the Filter interface.

SEVERE: The filter '{0}' has implementation '{1}' in xml. It does not match with '{2}' from annotation @{3}.**Variable Information**

{0}: Value of web.xml <display-name> tag
{1}: Value of web.xml <filter-class> tag
{2}: Class name
{3}: Annotation

Explanation

The <filter-name> tag of the filter class defined in web.xml is being used by the filterName attribute in the annotation of a different filter.

System Action

Processing is continued.

User Action

Ensure that the <filter-name> tag specified in web.xml does not duplicate the @WebFilter annotation filterName.

The RunAs role "{0}" is not mapped to a principal.**Variable Information**

{0}: Role specified in the web.xml run-as tag or @RunAs annotation

Explanation

The principal that corresponds to the role name specified in the deployment descriptor(web.xml) run-as tag or @RunAs annotation has not been defined in the Interstage deployment descriptor (glassfish-web.xml).

System Action

Processing is interrupted.

User Action

Based on the content of the output message, review the following definitions to remove the cause of the error and redeploy the application.

- Interstage deployment descriptor
- deployment descriptor

SEVERE: The servlet '{0}' has implementation '{1}' in xml. It does not match with '{2}' from annotation @{3}.

Variable Information

- {0}: Value of web.xml <display-name> tag
- {1}: Value of web.xml <servlet-class> tag
- {2}: Class name
- {3}: Annotation

Explanation

The <servlet-name> tag of the servlet class defined in web.xml is being used by the name attribute in the annotation of a different servlet.

System Action

Processing is continued.

User Action

Ensure that the <servlet-name> tag defined in web.xml does not duplicate the @WebServlet annotation name attribute.

SEVERE: The servlet '{0}' is a jsp '{1}' in xml. It does not match with '{2}' from annotation @{3}.

Variable Information

- {0}: Value of web.xml <display-name> tag
- {1}: Value of web.xml <jsp-file> tag
- {2}: Class name
- {3}: Annotation

Explanation

The <servlet-name> tag of the jsp file defined in web.xml is being used by the name attribute in the annotation of a different servlet.

System Action

Processing is continued.

User Action

Ensure that the <servlet-name> tag defined in web.xml does not duplicate the @WebServlet annotation name attribute.

Invalid annotation symbol found for this type of class. {0}

Variable Information

- {0}: Dependency Injection destination information

Explanation

The annotation that was used is not supported.

System Action

Processing is continued.

User Action

If the @PersistenceContext annotation is used in the application, change this to the @PersistenceUnit annotation. For details, refer to the JPA specifications.

10.43.11 Exceptions Thrown during Lifecycle Module Operations

Exception loading lifecycle module {0}; {1}

Variable Information

{0}: Lifecycle module definition name

{1}: Detailed message

Explanation

Failed to load the lifecycle module.

System Action

Processing is continued.

User Action

Refer to Detailed message {1}, and then take the required action.

Lifecycle module {0} is already created in this domain. Please use create application ref to create application reference on target {1}

Variable Information

{0}: Lifecycle module definition name

{1}: Target name

Explanation

A lifecycle module definition with the specified name already exists.

System Action

Processing is interrupted.

User Action

Ensure that the JJSERVER cluster was not deleted while lifecycle module definitions for the specified definition name existed.

After specifying a domain for the target name and deleting the relevant lifecycle module definition, create the lifecycle module definition again.

Lifecycle module {0} is already created on this target {1}

Variable Information

{0}: Lifecycle module definition name

{1}: Target name

Explanation

A lifecycle module definition with the same name already exists on the specified target.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Create a lifecycle module definition with a different name.
- After deleting the relevant lifecycle module definition, create the lifecycle module definition again.

Lifecycle module {0} is already referenced by other target(s). Please use create application ref to create application reference on target {1}

Variable Information

{0}: Lifecycle module definition name

{1}: Target name

Explanation

A lifecycle module definition with the same name already exists on another target.

System Action

Processing is interrupted.

User Action

Take one of the following actions:

- Create a lifecycle module definition with a different name.
- After deleting the relevant lifecycle module definition, create the lifecycle module definition again.

Lifecycle module {0} threw an Exception; please check your lifecycle module.

Variable Information

{0}: Lifecycle module definition name

Explanation

An exception was thrown from the lifecycle module.

System Action

Processing is continued.

User Action

Refer to the stack trace output at the same time, and correct the lifecycle module so that an exception is not thrown.

Lifecycle module with name [{0}] does not exist

Variable Information

{0}: Lifecycle module definition name

Explanation

A lifecycle module definition with the specified name does not exist.

System Action

Processing is interrupted.

User Action

Specify the correct lifecycle module definition name.

10.43.12 Messages that are Output while the Process is Running

SEVERE: Aborting, Failed to start container {0}

Variable Information

{0}: Internal information

Explanation

Failed to start the container.

System Action

Processing is interrupted.

User Action

Refer to the other messages and the exception information output at the same time, and remove the cause of the error.

SEVERE: Cannot start container {0}

Variable Information

{0}: Container name

Explanation

Failed to start the container.

System Action

Processing is interrupted.

User Action

Refer to the other messages and the exception information output at the same time, and remove the cause of the error.

SEVERE: doSelect IOException java.io.IOException: Unable to establish loopback connection

Explanation

Failed to establish a loopback connection.

System Action

Processing is interrupted.

User Action

If "java.net.SocketException: No buffer space available (maximum connections reached?)" is included in the exception information output at the same time, it is possible that the ephemeral ports have run out.

Refer to "java.net.SocketException: No buffer space available (maximum connections reached?)" in "[10.43.23 Exception Information that Starts with "java.net.SocketException"](#)", and then take the required action.

SEVERE: doSelect IOException java.net.BindException: No free port within range: {0}:{1}={2}

Variable Information

{0}: Host name or IP address information

{1}: Port number

{2}: Internal information

Explanation

The specified IP address or port number cannot be used.

System Action

Start processing is interrupted.

User Action

Check if the configurations given below are correct. Additionally, check if the port number {1} is already being used.

- HTTP listener network address and port number
- IIOP listener network address and port number
- JMS host and port number

Exception while preparing the app

Explanation

An exception occurred while loading the application.

System Action

The application load processing is interrupted, and the start processing continues.

User Action

Refer to the error messages output before and after this message, and after removing the cause of the error, redeploy the application.

jaccfactory.notfound

Explanation

The JACC factory was not found.

System Action

Processing is interrupted.

User Action

Refer to the other messages and the exception information output at the same time, and remove the cause of the error.

Log Format field separator is not a character so using default.

Explanation

The initial value will be used as the log message separator character.

System Action

Processing is continued.

User Action

Not required.

Record begin marker is not a proper value so using default.

Explanation

The initial value will be used as the log message start string.

System Action

Processing is continued.

User Action

Not required.

Record end marker is not a proper value so using default.

Explanation

The initial value will be used as the log message end string.

System Action

Processing is continued.

User Action

Not required.

SEVERE: Shutting down v3 due to startup exception : Address family not supported by protocol family: bind: {0}:{1}={2}

Variable Information

{0}: Host name or IP address information
{1}: Port number
{2}: Internal information

Explanation

The specified IP address or port number cannot be used.

System Action

Start processing is interrupted.

User Action

Check if the configurations given below are correct. Additionally, check if the port number {1} is already being used.

- HTTP listener network address and port number
- IIOP listener network address and port number
- JMS host and port number

SEVERE: Shutting down v3 due to startup exception : No free port within range: {0}:{1}={2}

Variable Information

{0}: Host name or IP address information
{1}: Port number
{2}: Internal information

Explanation

The specified IP address or port number cannot be used.

System Action

Start processing is interrupted.

User Action

Check if the configurations given below are correct. Additionally, check if the port number {1} is already being used.

- HTTP listener network address and port number
- IIOP listener network address and port number
- JMS host and port number

10.43.13 Messages that Start with "Unprocessed event"

Unprocessed event : UnprocessedChangeEvent{0}

Variable Information

{0}: Detail information

Explanation

Processing to update the definition is required.

System Action

Processing is continued.

User Action

Not required.

10.43.14 Exception Information that Starts with "com.sun.enterprise.container.common.spi.util"

com.sun.enterprise.container.common.spi.util.InjectionException: Exception attempting to inject {0} into {1}: Injected field: {2} on Application Client class: {3} must be declared static

Variable Information

{0}: Injected resource information

{1}: Injection destination class name

{2}: Name of the injection destination Java EE application client field

{3}: Injection destination Java EE application client class name

Explanation

Dependency Injection failed. Declare the injection destination field on the Java EE application client in the static variable.

System Action

Processing is interrupted.

User Action

Declare the injection destination field in the static variable.

com.sun.enterprise.container.common.spi.util.InjectionException: Exception attempting to inject {0} into {1}: Lookup failed for '{2}' in {3}

Variable Information

{0}: Injected resource information

{1}: Injection destination class name

{2}: Name of the field on the injection destination Java EE application client

{3}: Serial context information

Explanation

Dependency Injection failed. The resource to be injected was not found.

User Action

Check the application to be deployed, or the environment settings.

10.43.15 Exception Information that Starts with "com.sun.jersey.spi.inject"

[com.sun.jersey.spi.inject.Errors\\$ErrorMessagesException](#)

Explanation

An error was detected during processing.

System Action

Processing is interrupted.

User Action

Refer to the JAXRS label message output before this message, and then take the required action.

10.43.16 Exception Information that Starts with "java.io.FileNotFoundException"

[java.io.FileNotFoundException: {0}](#)

Variable Information

{0}: File name

Explanation

The file {0} cannot be found.

System Action

Processing is continued.

User Action

If the file {0} is under the following directory, redeploy the application displayed in <application name>.

[Java EE 6 common directory]/nodes/localhost-domain1/<server instance name>/generated/xml/<application name>

If the above does not apply, refer to the file name {0} and the stack trace that was output at the same time, and then take the required action.

10.43.17 Exception Information that Starts with "java.lang.ClassCastException"

[java.lang.ClassCastException: org.glassfish.appclient.client.acc.config.TargetServer cannot be cast to org.glassfish.appclient.client.acc.config.ClientContainer](#)

Explanation

The sun-acc.xml specified for the -xml option of the appclient command is invalid.

System Action

Processing is interrupted.

User Action

Specify the sun-acc.xml that has been defined correctly for the -xml option of the appclient command.

10.43.18 Exception Information that Starts with "java.lang.ClassNotFoundException"

[java.lang.ClassNotFoundException: {0}](#)

Variable Information

{0}: Class name

Explanation

Although an attempt was made to load using class string names from the class loader, definitions for the specified class name could not be found.

User Action

A class of the specified name does not exist in the application or the specified classpath.

Add the class with the specified name to the application or the classpath.

If this error is generated when an application that has no implementation problems is HotDeployed, restart the IJServer cluster.

Also, it is possible that the repository is not synchronized. Change the update date and time for domain.xml to the current time. Refer to "[2.1.4 Repository Synchronization](#)" for details.

10.43.19 Exception Information that Starts with "java.lang.IllegalArgumentException"

[java.lang.IllegalArgumentException: Empty key](#)

Explanation

The password that was specified when the password alias was created or updated contains null characters.

System Action

Processing is interrupted.

User Action

Specify a password, and then reexecute the command.

[java.lang.IllegalArgumentException: Invalid property syntax, missing property value: {0}](#)

Variable Information

{0}: Value specified in the property

Explanation

The property value that was specified is invalid.

System Action

Processing is interrupted.

User Action

Specify the correct value in the property, and then reexecute the command.

10.43.20 Exception Information that Starts with "java.lang.NoClassDefFoundError"

[java.lang.NoClassDefFoundError: {0}](#)

Variable Information

{0}: Class name

Explanation

Failed to load the class.

System Action

Processing is interrupted.

User Action

The required class does not exist in the application or the specified classpath.

Add the class displayed in the exception message to the application or the classpath.

Also, it is possible that the repository is not synchronized. Change the update date and time for domain.xml to the current time. Refer to "[2.1.4 Repository Synchronization](#)" for details.

When executing Java SE stand-alone applications using the java command, also refer to the following and take the required action:

- If the class where the error occurred is "javax/security/jacc/PolicyContextException"
The classpath is not configured in javaee.jar. Refer to "[4.12 Setting the JNDI Environment](#)", and configure the classpath correctly.
- If the class where the error occurred is "com/sun/jms/spi/xa/JMSXAQueueConnectionFactory"
The classpath is not configured in imqjmsra.jar. Refer to "[4.12 Setting the JNDI Environment](#)", and configure the classpath correctly.

10.43.21 Exception Information that Starts with "java.lang.RuntimeException"

[java.lang.RuntimeException: Missing type parameter.](#)

Explanation

The type parameter was not specified in the javax.ws.rs.core.GenericEntity class.

System Action

Processing is interrupted.

User Action

When using the objects of javax.ws.rs.core.GenericEntity class or its subclasses, specify the type parameter when declaring variables and generating objects.

10.43.22 Exception Information that Starts with "java.lang.UnsatisfiedLinkError"

[java.lang.UnsatisfiedLinkError](#)

Explanation

Java VM cannot find the appropriate native language for a method declared to be native.

System Action

Link processing is interrupted.

User Action

If an exception is thrown by the JDBC driver, check if the environment variable PATH(LD_LIBRARY_PATH) has been configured correctly. For details on environment variables, refer to "[4.3.3 Environment Variable Settings](#)".

In all other cases, refer to the Java EE Operator's Guide - "Exceptions Output during J2EE Usage"-"java.lang.UnsatisfiedLinkError".

10.43.23 Exception Information that Starts with "java.net.SocketException"

[java.net.SocketException: No buffer space available \(maximum connections reached?\)](#)

Explanation

Insufficient buffer space.

System Action

Processing is interrupted.

User Action

If this message is output, it is possible that the ephemeral ports have run out.

Check the network status using the "netstat -a" command, and ensure that a large number of "TIME_WAIT" status connections do not exist.

If it is confirmed that ephemeral ports have run out, tune the TCP/IP parameter.

For details on tuning methods, refer to "Tuning TCP/IP Parameters" in the Tuning Guide.

Also, if keep alive is disabled, TCP/IP resources will be more easily consumed.

10.43.24 Exception Information that Starts with "java.security.AccessControlException"

[java.security.AccessControlException: access denied \(java.io.SerializablePermission enableSubclassImplementation\)](#)

Explanation

There are insufficient privileges to perform IIOP communication. This may occur when Security Manager is used.

System Action

Processing is interrupted.

User Action

Set the following as the system property:

```
jdk.corba.allowOutputStreamSubclass=true
```

10.43.25 Exception Information that Starts with "java.security.UnrecoverableKeyException"

[java.security.UnrecoverableKeyException: Cannot recover key](#)

Explanation

Unable to retrieve the key.

System Action

Processing is interrupted.

User Action

Check if the private key password matches the keystore password. If the passwords do not match, use the keytool command to reset the private key password.

[java.security.UnrecoverableKeyException: Password verification failed](#)

Explanation

Failed to verify the password.

System Action

Processing is interrupted.

User Action

Check if the keystore or the truststore password matches the master password. If the passwords do not match, use the keytool command to reset the keystore or the truststore password.

10.43.26 Exception Information that Starts with "javax.xml.bind"

javax.xml.bind.UnmarshalException: unexpected element (uri:"{0}", local:"{1} "). Expected elements are <{}auth-realm>,<{}cert-db>,<{}client-container>,<{}client-credential>,<{}log-service>,<{}message-security-config>,<{}property>,<{}provider-config>,<{}request-policy>,<{}response-policy>,<{}security>,<{}ssl>,<{}target-server>

Variable Information

{0}: deployment descriptor XML schema reference destination URI specified in the applient command -xml option
{1}: deployment descriptor specified in the applient command -xml option

Explanation

The sun-acc.xml specified in the applient command -xml option is invalid.

System Action

Processing is interrupted.

User Action

Specify a sun-acc.xml that has been defined correctly in the applient command -xml option.

**javax.xml.bind.UnmarshalException
- with linked exception:
[org.xml.sax.SAXParseException;{0}]**

Variable Information

{0}: Detail information

Explanation

The sun-acc.xml specified in the applient command -xml option is invalid.

System Action

Processing is interrupted.

User Action

Specify a sun-acc.xml that has been defined correctly in the applient command -xml option.

10.43.27 Exception Information that Starts with "org.eclipse.persistence"

If an error has occurred using Java Persistence API, the Interstage persistence provider will throw an exception according to the JPA specifications. An exception that starts with "org.eclipse.persistence" may be thrown as the exception cause. This section explains this exception information.

Note that, if the exception explained here occurs, consider the following:

- Most exceptions indicate an environment or application problem. So that the error does not occur, check the environment, and then correct the application if necessary.
- Check the exception class name described in the exception information, and then check the meaning and recommended action in the explanation for that exception class.
- If an exception stack trace was output, "Caused by:" may also be output after the stack trace as another exception. This shows the root cause, so check this as well.
- It may be possible to identify the class name or method name, or class/method name of the Java Persistence API that was called, of the application in which the error occurred from the stack trace.

Note

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 `org.eclipse.persistence`. To catch exceptions in the application, change the definition in the Java EE API specification so that exceptions are caught. For example, the API specification for the `javax.persistence.EntityManager.persist` method stipulates 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 [[EclipseLink-0](#)] ({1}): {2}

Exception Description: {3}

Internal Exception: {4}

Variable Information

| | Explanation |
|-----|---|
| {0} | Error number |
| {1} | Internal information |
| {2} | Exception class name |
| {3} | Error information |
| {4} | Exception information wrapped in this exception |

If there is an item for which there is no information, that line is not output.

Exception stack trace format

Local Exception Stack:

{0}

Exception Description: {1}

Internal Exception: {2}

Variable Information

| | Explanation |
|-----|---|
| {0} | Exception information and stack trace in this exception |
| {1} | Error information |
| {2} | Exception stack trace wrapped in this exception |

Items for which there is no information are not output.

Explanation of the exceptions

[org.eclipse.persistence.exceptions.EntityManagerSetupException](#)

Explanation

Failed to create the Entity Manager Factory or Entity Manager.

User Action

Refer to Error information or Exception information that is returned from the JDBC driver, remove the cause of the error, and then reexecute the process.

[org.eclipse.persistence.exceptions.DatabaseException](#)

Explanation

An error occurred when the database was accessed.

User Action

Refer to Error information or Exception information that is returned from the JDBC driver, remove the cause of the error, and then reexecute the process.

[org.eclipse.persistence.exceptions.ValidationException](#)

Explanation

There are invalid locations in the JPA runtime environment or database environment. Alternatively, the persistence field is not configured to the type supported in the Interstage persistence provider.

User Action

Refer to Error information, remove the cause of the error, and then reexecute the process.

If the error number is 7027, check if the database sequence used in the primary key value automatic generation feature has been created.

If the error number is 7212, check if TemporalType has been defined in the java.util.Date type or java.util.Calendar type persistence fields.

If the error number is 7231, it means a uniqueness constraint violation has occurred, therefore check the table record or Entity value for which the insertion attempt was made.

10.43.28 Exception Information that Starts with "org.glassfish.appclient.acc"

[org.glassfish.appclient.client.acc.UserError: Client Container xml: \[{0}\] not found or unable to read. You may want to use the -xml option to locate your configuration xml.](#)

Variable Information

{0}: sun-acc.xml path specified in the appclient command -xml option

Explanation

The sun-acc.xml was not found, or could not be read.

System Action

Processing is interrupted.

User Action

Check if the sun-acc.xml path specified in the appclient command -xml option is valid.

org.glassfish.appclient.client.acc.UserError: arg {0} = {1} not recognized**Variable Information**

{0}: Internal information

{1}: Option specified in the VMARGS environment variable

Explanation

The option specified in the VMARGS environment variable cannot be set in the application client container.

System Action

Processing is interrupted.

User Action

Delete the option output in the message from the VMARGS environment variable.

10.43.29 When there is no Message

If a message not explained in this section is output, refer to the Java EE Operator's Guide. If the message is not in the Java EE Operator's Guide, identify the cause of the error from the body of the message and then remove the cause of the error. If the cause of the error cannot be removed, contact Fujitsu technical support.

Chapter 11 Troubleshooting

This chapter explains the methods used to resolve problems that occur in Java EE application operations.

11.1 Batch Information Collection Tool

The batch information collection tool (`iscollectinfo`) is a command that collects data that can be used for investigation when a problem occurs while Interstage is running. When the problem occurs, use this command to collect the problem investigation data before contacting Fujitsu technical support. `iscollectinfo` is stored in the following location:

Windows32/64

C:\Interstage\bin

Solaris32/64 Linux32/64

/opt/FJSVisas/bin

For details on the `iscollectinfo` command, refer to "iscollectinfo" in the "Maintenance Commands" chapter of the Reference Manual (Command Edition).



Point

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]

Solaris32/64 Linux32/64

For details on FJQSS, refer to the manual stored in the "FJQSS" directory of the Manual package.



Note

Windows32/64

- In Windows, information collection may fail due to restrictions on the length of path names. Limit the length to 20 characters for the full path name of the "data for investigation storage location directory" of the batch information collection tool, or the "work directory" of the FJQSS information collection tool, and specify a path name that is as short as possible. For details on the specification methods, refer to each of the following manuals:

- Batch information collection tool
"iscollectinfo" in "Maintenance Commands" chapter of the Reference Manual (Command Edition)
- FJQSS
FJQSS (Information Collection Tool) User's Guide

Solaris32/64 Linux32/64

- Copy the collected information using the `cp -pR` command.
- If using the batch information collection tool to collect investigation data in an environment where UpdateAdvisor has been installed, accept the UpdateAdvisor usage license agreement before executing the tool.
If the usage license agreement is not accepted, the batch information collection tool does not operate and the information cannot be collected.
The UpdateAdvisor usage license agreement is displayed when the `uam` command is executed for the first time after installing UpdateAdvisor.

11.2 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](#)
- [Delay in the Command Return](#)
- [An Unintended Value Is Saved When the Definition Item Is Updated](#)
- [Errors during Successive Start/Stop Operations](#)
- [Message OM2120 Is Output When the asadmin Command Is Executed](#)

Password Input Is Requested When the Command Is Executed

To omit input of the password when the command is executed, refer to "asadmin", ["9.1.3.1 login Subcommand"](#).

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 ["Chapter 10 Java EE 6 Messages"](#) chapter.

Output of an Exception Message

If an exception message is output when the command is executed, refer to the following and take the required 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 shown below.

```
Exception in thread "RMI
RenewClean-[192.0.2.1:42964,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 6 DAS service may have failed because of a high load. Check the system load status and re-execute the command if there are available system resources.

java.lang.NoClassDefFoundError

If this exception mentions the javax.xml.stream.XMLStreamException class when the ijwsimport command is executed, the cause may be that the JDK6 or later java command for this product has not been used. Check the PATH environment variable, for example.

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 6 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 definitions or operations. Check that multiple operations were not executed at the same time and re-execute the command.

An Unintended Value Is Saved When the Definition Item Is Updated

Another user may have performed an operation at the same time using the method shown below, therefore the value that was specified may have been overwritten.

- asadmin command

Check if another user has performed an operation at the same time, and then perform the operation again if necessary.

Errors during Successive Start/Stop Operations

The asadmin command is returned without waiting for the Interstage Java EE 6 DAS service or the server instance operation to complete. For this reason, if start operations (start-domain, start-cluster, and start-local-instance) and stop operations (stop-domain, stop-cluster, and stop-local-instance) are executed successively, the asadmin command may fail with the following error:

Failed to start process named <server instance name>. PCMI Error Code=301.

Take one of the following actions:

Performing Start Operations

After confirming, by using the [pcmilistprocesses](#) command, that the server instance (Interstage Java EE 6 DAS service) targeted for operation has not been displayed, execute the start operation.

Performing Stop Operations

After confirming, by using the [pcmilistprocesses](#) command, that the status of the server instance (Interstage Java EE 6 DAS service) targeted for operation is "monitoring", execute the stop operation.

Message OM2120 Is Output When the asadmin Command Is Executed

Inconsistencies may be generated in web server linkage settings, if a message displaying what has already been set in OM2120 Detail information has been output and you still cannot take the actions indicated by the message. Specify the --detail option in the wscadmin list-web-servers subcommand to check the settings for the following displayed items, and then take appropriate action. For details on the wscadmin list-web-servers subcommand, refer to "[9.14.6 list-web-servers Subcommand](#)".

IJServerCluster

- Check if the displayed IJServer cluster exists.

If the IJServer cluster does not exist, use the following procedure to delete the remaining settings linking to a non-existent IJServer cluster.

1. Create an IJServer cluster with the name that is displayed.
2. Delete the linkage settings using the asadmin delete-web-server-ref subcommand.
3. Delete the IJServer cluster that was created.

- Check if the server instance exists in the displayed IJServer cluster.

If there is no server instance, use the asadmin delete-web-server-ref subcommand to delete the remaining settings linking to the displayed IJServer cluster.

If server instances exist, check the following "Address" and "Application" items.

Address

Check if the server instance of the IJServer cluster uses the displayed port number. As inconsistencies are generated in web server linkage settings if the displayed port number is not used, reconfigure using the following procedure:

1. Use the asadmin delete-web-server-ref subcommand to temporarily delete linkages with the web server.
2. Use the asadmin create-web-server-ref subcommand to re-link with the web server.

3. If necessary, use the `asadmin update-web-server-connector-config` subcommand to update the web server connector environment settings.

Application

Check if an application with the displayed context root has been deployed to the IJServer cluster. As inconsistencies are generated in web server linkage settings if an application has not been deployed, reconfigure using the same procedure as above (for "Address").

11.3 Operational Errors

This section explains problems that may occur during operation.

11.3.1 Operating Environment-Related Errors

This section explains how to take action in response to problems, given below, that are related to the Java EE application operating environment.

- [Errors that Occur When the Server Instance Starts](#)
- [Abnormal Termination of the Server Instance](#)
- [Server Instances with the Same Name That Is Not Case-Sensitive have been Created](#)
- [Applications with the Same Name That Is Not Case-Sensitive have been Deployed](#)
- [Errors That Occur When the Interstage Java EE 6 DAS Service Starts](#)
- [Startup Fails Because the Communication Port Cannot Be Obtained](#)
- [Unable to Operate or Start due to Errors in HTTP Listener Settings](#)
- [Errors that Occur When the Interstage Java EE 6 DAS Service Stops](#)
- [Abnormal Termination of the Interstage Java EE 6 DAS Service](#)
- [Interstage Java EE 6 DAS Service Behavior Is Different to the Definition Item Value](#)
- [Interstage Java EE 6 DAS Service Does Not Accept Operations](#)
- [Procedure for Collecting the Interstage Java EE 6 DAS Service Full Thread Dump](#)
- [Interstage Java EE 6 DAS Service Process Recovery Procedure](#)
- [Abnormalities in Application Operations in the Interstage Java EE 6 DAS Service](#)
- [Abnormal Termination of the PCMI Service](#)

Errors that Occur When the Server Instance Starts

If the server instance fails to start, check if error messages have been output to the following logs and investigate the cause of startup failure by referring to the "Java EE Messages" chapter in the Java EE Operator's Guide or "[10.32 Messages that Contain "PCMI" in the Message ID](#)".

- Event log (Windows) or system log (Solaris/Linux)
- Server log
- Java VM log
- PCMI service trace logs

Alternatively, take one of the following actions:

- If the server instance start wait time is exceeded due to a delay in the server instance start processing or if it hangs, a full thread dump of the Java VM process will be output to the Java VM log. Refer to the full thread dump, and check for the presence of applications that may cause the start processing to delay or hang.

- If the startup fails because the communication port cannot be obtained, tune the port numbers by referring to "[Appendix D Port Numbers](#)".
- If messages displaying Java VM errors have been output to the Java VM log, investigate the cause of startup failure by referring to the "JDK/JRE Tuning" chapter in the Tuning Guide.

If the cause of the error cannot be determined even after performing the above investigation, collect the information using the `iscollectinfo` command and contact Fujitsu technical support.

Abnormal Termination of the Server Instance

If the server instance process terminates abnormally, check if error messages have been output to the following logs and investigate the cause of abnormal termination by referring to "[Chapter 10 Java EE 6 Messages](#)".

- Event log (Windows) or system log (Solaris/Linux)
- Server log
- Java VM log
- PCMI service trace logs

A JDK or JRE error message may be output to the Java VM log and the server log. Investigate by referring to the "JDK/JRE Tuning" chapter in the Tuning Guide.

If the cause of the error cannot be determined even after performing the above investigation, collect the information using the `iscollectinfo` command and contact Fujitsu technical support.

Point

.....

If "true" has been set for "Process Automatic Restart" of the PCMI profile, jobs can continue to run even if server instance processes terminate abnormally during operation. This is because automatic restart of the process will be performed by the PCMI service automatic restart function. For details, refer to "[2.5.1 Life-and-death Monitoring of the Java VM Process](#)".

.....

Server Instances with the Same Name That Is Not Case-Sensitive have been Created Windows32/64

If server instances with the same name that is not case-sensitive have been created, only one server instance can be deleted using the regular method. In this case, perform deletion using the following procedure:

1. If the directory below does not exist, create a server instance.

```
[Java EE 6 common directory]\nodes\localhost-domain1\agent
```

2. Create the directory with the server instance name you want to delete as follows:

```
[Java EE 6 common directory]\nodes\localhost-domain1\

```

3. Delete the relevant server instance using the `asadmin delete-local-instance` subcommand. Doing this displays the following message, which can be ignored.

```
The instance directory does not exist: <path of the server instance to be deleted>
```

4. If a server instance was created in step 1, delete that server instance.

Applications with the Same Name That Is Not Case-Sensitive have been Deployed Windows32/64

If applications with the same name that is not case-sensitive have been deployed, undeploy both existing and deployed applications. Note that when you do this, applications cannot be redeployed after one of them has been undeployed. After the applications with the same name that is not case-sensitive have been undeployed, restart the IJServer cluster or the Interstage Java EE 6 DAS service on the expansion destination.

Errors That Occur When the Interstage Java EE 6 DAS Service Starts

If the Interstage Java EE 6 DAS service fails to start, check if an error message is output as standard output and to the log shown below, then refer to the Messages manual and investigate the cause of the startup failure.

- Interstage Java EE 6 DAS service server log

If an error message was output to the server log showing that there is insufficient memory, refer to "[6.13 Interstage Java EE 6 DAS Service Heap Size](#)" and take the required action.

If error messages are not output to the server log and only the command line is output, delete the directories given below and then start the Interstage Java EE 6 DAS service.

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\osgi-cache\felix
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/osgi-cache/felix
```

For details on the log file, refer to "[4.17 Java EE Application Logs](#)".

Invalid processes may still remain because of the error that occurs on startup. Refer to "[Interstage Java EE 6 DAS Service Process Recovery Procedure](#)", and recover the remaining processes.

As a result of JVM option tuning, options required to run the product may be deleted. Refer to "[7.7.14 Java VM Definition Items](#)", and check if the default JVM options have been deleted.

Startup Fails Because the Communication Port Cannot Be Obtained

If the startup fails because the communication port cannot be obtained, refer to "[When the Interstage Java EE 6 DAS service cannot be started because of port number duplication](#)" or "[Appendix D Port Numbers](#)" and tune the port number.

Note that, if the Interstage Java EE 6 DAS service startup fails because it is using the same port number as another service/process, stop the service/process that is using the duplicated port number, and then start the Interstage Java EE 6 DAS service and change the Interstage Java EE 6 settings.

Unable to Operate or Start due to Errors in HTTP Listener Settings

If the settings for the HTTP listener are incorrect, the Interstage Java EE 6 DAS service and the IJServer cluster may fail to start.

In case of the IJServer cluster, stop the IJServer cluster and execute the asadmin command while the Interstage Java EE 6 DAS service is running and then configure the correct values. You can now restore by starting the IJServer cluster.

If the settings for the HTTP listener are incorrect, the Interstage Java EE 6 DAS service will not be able to start or even accept operations from the asadmin command.

In this case, edit domain.xml when the Interstage Java EE 6 DAS service is stopped.

Note

When editing domain.xml, do not change the settings of attributes other than those given below. If changed, it may not be possible to use the Interstage Java EE 6 DAS service. Additionally, it is recommended that you back up domain.xml before you edit it.

How to edit domain.xml

Open the files given below in a text editor to edit them.

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\config\domain.xml
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/domains/domain1/config/domain.xml
```

Check the following for "server-config" set for the name attribute of the config tag. If invalid values have been specified, edit them.

- Do the port attributes exist? If there are port attributes, are the specified port number values correct?
Port attributes must be specified.
- If there is an address attribute, is it the machine's IP address?
If there is no address attribute, it will operate using the default "0.0.0.0".
- If there are enabled attributes, is the operations management HTTP listener (admin-listener) set to "false"?
If it is "false", set it to "true" because operations from the asadmin command cannot be accepted.
- Do transport attributes, protocol attributes, and thread-pool attributes exist?
If not, appropriate specifications must be defined as shown in the following examples.



Example

Example of a typical domain.xml

```
<domain log-root="{com.sun.aas.instanceRoot}/logs" ...>
...
<configs>
  <config name="server-config">
...
    <network-config >
...
      <network-listeners>
        <network-listener port="28282" protocol="http-listener-1" transport="tcp" name="http-
listener-1" thread-pool="http-thread-pool"></network-listener>
        <network-listener port="28383" protocol="http-listener-2" transport="tcp" name="http-
listener-2" thread-pool="http-thread-pool"></network-listener>
        <network-listener port="12011" protocol="admin-listener" transport="tcp" name="admin-
listener" thread-pool="admin-thread-pool"></network-listener>
      </network-listeners>
...
    </network-config >
  </config>
</configs>
</domain>
```

The state of domain.xml immediately after installation is as follows.

| | Port number port | Network address address | Enabling HTTP listener enabled |
|--|---------------------|------------------------------------|-----------------------------------|
| HTTP listener for operation management admin-listener | 12011 | Not specified (default 0.0.0.0) | Not specified (default "true") |
| HTTP listener http-listener-1 | 28282 | Not specified (default 0.0.0.0) | Not specified (default "true") |
| HTTPS listener http-listener-2 | 28383 | Not specified (default 0.0.0.0) | Not specified (default "true") |

Errors that Occur When the Interstage Java EE 6 DAS Service Stops

If the attempt to stop the Interstage Java EE 6 DAS service fails, check if an error message is output as standard output and to the log shown below, then refer to the Messages manual and investigate the cause of the stop failure.

- Interstage Java EE 6 DAS service server log

Additionally, invalid processes may still remain because of the error that occurred when the Interstage Java EE 6 DAS service stopped. Refer to "[Interstage Java EE 6 DAS Service Process Recovery Procedure](#)", and recover the remaining processes.

Abnormal Termination of the Interstage Java EE 6 DAS Service

If the Interstage Java EE 6 DAS service terminates abnormally, an error message will be notified to the system log or the event log. Collect the problem investigation data using the iscollectinfo command, and contact Fujitsu technical support.

Note that if the Interstage Java EE 6 DAS service terminates abnormally, definition changes and server instance operations cannot be performed using the asadmin command. If this problem occurs, restart the Interstage Java EE 6 DAS service.



Point

.....
 If "true" has been set for "Process Automatic Restart" of the PCMI profile, jobs can continue to run even if the Interstage Java EE 6 DAS service processes terminate abnormally during operation. This is because automatic restart of the process will be performed by the PCMI service automatic restart function. For details, refer to "[2.5.1 Life-and-death Monitoring of the Java VM Process](#)".

Interstage Java EE 6 DAS Service Behavior Is Different to the Definition Item Value

If the behavior of the Interstage Java EE 6 DAS service and the value obtained in the asadmin command get subcommand is different, a definition item value that is required for restart may have been changed. Restart the Interstage Java EE 6 DAS service. If the definition item value is not effective even after the restart, collect the problem investigation data and contact Fujitsu technical support.

Interstage Java EE 6 DAS Service Does Not Accept Operations

Execute "[Procedure for Collecting the Interstage Java EE 6 DAS Service Full Thread Dump](#)", and check if the user application hangs. If the user application does not hang, refer to "[Interstage Java EE 6 DAS Service Process Recovery Procedure](#)" and recover the remaining processes. Collect the problem investigation data and contact Fujitsu technical support.

Additionally, if the operation management HTTP listener port number is changed, normal operations will not be accepted. For details, refer to "[Changing the Operation Management HTTP Listener Port Number](#)".

Procedure for Collecting the Interstage Java EE 6 DAS Service Full Thread Dump

Use the following procedure to collect the Interstage Java EE 6 DAS service full thread dump:

1. Refer to the following files, and obtain the Interstage Java EE 6 DAS service process ID.

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\config\pid
```

Solaris32/64 **Linux32/64**

```
[Java EE 6 common directory]/domains/domain1/config/pid
```



Note

If the pid file does not exist or the java process does not exist, the process will not exist either.

2. Use the following method to check if the process for the ID that was obtained in step 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 obtain the full thread dump for the ID that was obtained in step 1.

Windows32/64

Use the thdump command to obtain the full thread dump.

Solaris32/64 **Linux32/64**

Execute the jstack command.

Interstage Java EE 6 DAS Service Process Recovery Procedure

Use the following procedure to recover the Interstage Java EE 6 service process:

1. Refer to the following files, and check the Interstage Java EE 6 DAS service process ID.

Windows32/64

```
[Java EE 6 common directory]\domains\domain1\config\pid
```

Solaris32/64 **Linux32/64**

```
[Java EE 6 common directory]/domains/domain1/config/pid
```



Note

If the pid file does not exist or the java process does not exist, the process will not exist either.

2. Use the following method to check if the process for the ID that was obtained in step 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 obtained in step 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 6 DAS Service

For details, refer to "11.3.3 Application Operational Errors".

Abnormal Termination of the PCMI Service

If the PCMI service terminates abnormally, collect the information using the iscollectinfo command and contact Fujitsu technical support.

Note that if the PCMI service terminates abnormally, the following functions will not operate. However, there will be no impact on the operations of applications that are already running.

- Start or stop of the Interstage Java EE 6 DAS service
- Start or stop of an IJServer cluster
- Start or stop of the server instance
- Life-and-death monitoring of the process
- Keep alive monitoring of the process
- Stop time monitoring of the process
- Monitoring the maximum application processing time
- Java VM log collection
- Execution of scripts when the PCMI service stops

- Control when there is insufficient Java heap/Permanent generation space

(*1) If the PCMI service terminates abnormally, the following operations will be performed depending on the setting for "Control when there is insufficient Java heap/Permanent generation space" in the PCMI profile.

- If "restart" is set
The process cannot be restarted, therefore it crashes.
- If "oome" is set
"java.lang.OutOfMemoryError" is returned to the application. There will be no impact on operations.

To return to the normal status, perform recovery using the following procedure:

1. Check the server instance that is running.

After checking the server instance with the "running" status using the asadmin list-instances subcommand, refer to the files below and check the process ID of this server instance.

Windows32/64

```
[Java EE 6 common directory]\nodes\localhost-domain1\\config\pid
```

Solaris32/64 Linux32/64

```
[Java EE 6 common directory]/nodes/localhost-domain1/<server instance name>/config/pid
```

Note

If the pid file does not exist, the process will not exist either.

2. Use the following method to check if the process for the ID that was obtained in step 1 exists as a java process.

Windows32/64

Check this using the Windows Task Manager.

Solaris32/64 **Linux32/64**

Check this using the ps command.

Note

If the java process for the ID that was obtained in step 1 does not exist, the process will not exist either.

3. Use the following method to recover the process for the ID that was obtained in step 1.

Windows32/64

End the process using the Windows Task Manager.

Solaris32/64 **Linux32/64**

Delete the process using the kill command.

4. Recover the Interstage Java EE 6 DAS service process using the [Interstage Java EE 6 DAS Service Process Recovery Procedure](#).
5. Start the PCMI service using the following method.

Windows32/64

Stop the Interstage PCMI(isje6) service, and start the PCMI service.

Solaris32/64 **Linux32/64**

Start the PCMI service.

6. Restart the Interstage Java EE 6 DAS service.
7. Restart the IJServer cluster.

Note

- If the PCMI service is started without performing a recovery, correct operations cannot be performed for server instances that have not had a recovery performed. Perform recovery, and return them to the normal status.
- Server instances that were running before the PCMI service will be subject to recovery. If the PCMI service was started without performing recovery, determine which server instances are the targets of recovery by comparing the PCMI service start time and the server instance start time.
Check the PCMI service start time with the time of the message PCMI1000 output to the event log or the system log. Additionally, check the server instance start time with the time of the message PCMI1002 output to the event log or the system log.

11.3.2 Action for Garbled Characters in the Java EE Application

For details on the action to take when there are garbled characters, and which code conversion settings cause garbled characters, refer to "Action for Garbled Characters in the Java EE Application" in the Java EE Operator's Guide.

11.3.3 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 or Is Running](#)
- [Inconsistencies 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 or Is Running

If an error occurs in the application when the IJServer cluster starts 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.

Inconsistencies When the Application Is Redeployed or Undeployed

If the following are output when the application is redeployed or undeployed, an inconsistency may have occurred in the Interstage Java EE 6 DAS service internal information.

- Failure removing policy context directory: Directory
- Failure removing policy file: File

If this problem has occurred, use the following procedure to perform a recovery:

1. Deploy the application.
2. Undeploy the application.
3. In the case of 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.

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 "[2.22 Class Loader](#)". If they cannot be referenced this way, then reconfigure appropriately.

11.3.4 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.
- **There is an error in the site certificate nickname**
Check that the site certificate nickname has been set correctly.

11.3.5 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:

- 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 6 DAS service, a message is output stating that log authentication has failed, that the user name or password is invalid, or that there are no privileges.

If the problem is not resolved, then the following may have occurred:

- 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 6 DAS service, so the problem may be resolved.

If the admin-realm setting was changed and the Interstage Java EE 6 DAS service failed to restart, then the new setting may be invalid.

- For the auth-realm tag (<auth-realm name="admin-realm">) under the config tag (<config name="server-config">) of domain.xml (*1), correct the parts in **bold** below and then restart the service.

```
<config name="server-config">
....
<security-service>
<auth-realm classname="com.sun.enterprise.security.auth.realm.file.FileRealm" name="admin-realm">
<property name="file" value="{com.sun.aas.instanceRoot}/config/admin-keyfile"></property>
<property name="jaas-context" value="fileRealm"></property>

<property name="assign-groups" value="asadmin"/>
</auth-realm>
....
```

Set the assign-groups property if necessary.

Set other values as shown above.

*1) The file location for domain.xml is shown below.

Windows32/64

[Java EE 6 common directory]\domains\domain1\config

Solaris32/64 **Linux32/64**

[Java EE 6 common directory]/domains/domain1/config

11.3.6 Errors Relating to Additional Properties

When a resource is created using the asadmin command with an invalid additional property, the creation may 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 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.

11.4 Web Application Development Errors

Corrective action for the following errors that may occur when developing or running applications is provided below.

- [JSP Compile Failure](#)
- [Ineffective Updates to JSP or to Files from JSP](#)
- [Expected Error Page Is Not Displayed in the Web Browser](#)
- [Status Code "404 Not Found" Is Notified to the Web Browser on Accessing URIs That Include Multibyte Characters Such As Japanese](#)

- Status Code "404 Not Found" Is Notified to the Web Browser after Restoring/Importing Resources
- Message IJServer12027 Is Output to the Web Server Connector Log
- Message IJServer12046 Is Output to the Event Log/System Log
- Web Server Connector Log Output Settings are Not Changed
- Communication with a Web Application Deployed to the Interstage Java EE 6 DAS Service Fails
- Status Code "400 Bad Request" Is Notified to the Web Browser
- Status Code "403 Forbidden" Is Notified to the Web Browser
- Status Code "500 Internal Server Error" Is Notified to the Web Browser
- File Upload Fails When Files Exceeding 2 GB are Uploaded during Servlet File Upload
- Illegal exception Occurs on Executing `javax.servlet.http.HttpServletRequest#getPart(String)` and `getParts()` during Servlet File Upload
- No Faults Found Despite Using the Fault Monitoring Function
- Distribution Targets Cannot Be Displayed Using the `svmondspstat` Command

JSP Compile Failure

Possible causes are as follows:

- **JSP contains an error**
The JSP must conform to JSP 2.2 specifications.
Check if there are errors in the JSP syntax.
For details on the JSP 2.2 syntax, refer to the specifications.
- **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 2.2 specifications.
- **Class from the JSP does not exist**
Classes used from JSP must be able to be referenced from the web class loader.
For details, refer to "[2.22 Class Loader](#)".
- **Nameless package class was used**
Nameless package classes cannot be used from JSP, therefore you must specify a name for the package.
- **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.

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 are substituted, however the timestamp is older than the time that the previous JSP compile was performed.

Take the following action:

- Update the timestamp of the JSP or the files that are included statically from the JSP, to the current time on the machine.

Expected Error Page Is Not Displayed in the Web Browser

For details, refer to "[1.3.2 Notes About Web Applications](#)", "[Error Page Status Codes](#)", "[Web Browser Settings](#)".

Status Code "404 Not Found" Is Notified to the Web Browser on Accessing URIs That Include Multibyte Characters Such As Japanese

Check if the "Encoding that is used in request URI analysis" (uri-encoding) of the network configuration definition items and the encoding of the request URI sent from the web browser match. Also, check the encoding format used by the web browser to encode request URIs.



Example

Microsoft(R) Internet Explorer 8

If [Tools] > [Internet Options] > [Advanced] > [Send UTF-8 URLs] is selected, the request URI is sent in UTF-8.

Status Code "404 Not Found" Is Notified to the Web Browser after Restoring/Importing Resources

When Java EE 6 resources are restored or imported, ensure that the services resources targeted for backup, which are displayed on using the `isprintbackupsrsc` command, are also restored or imported. In particular, restore and import Interstage HTTP Server 2.2 resources and the Web Server Connector (for Interstage HTTP Server 2.2) resources, when linked to the web server.

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.

Message IJServer12046 Is Output to the Event Log/System Log

There may have been an attempt to delete the operating environment of the web server connector while the web server was operating. If deletion is to be performed, use the following procedure:

1. Stop the web server.
2. Edit the web server environment definition file (`httpd.conf`), and stop the web server connector calls from the web server.
3. Delete the web server connector operating environment using the `wscadmin delete-env` subcommand.
4. Start the web server.

For details, refer to the notes in "[9.14.2 delete-env Subcommand](#)".

If the web server connector operating environment is accidentally deleted, restore the web server connector operating environment settings using the web server connector restore command (`wscrestore`).

Alternatively, you can reconfigure the deleted web server connector environment settings, or the linkage settings for the web server and the IJServer cluster, according to the following:

"[4.7.2 Setting the Web Server Connector Environment](#)"

"[4.7.3 Linkage Settings for the Web Server and the IJServer Cluster](#)"

Web Server Connector Log Output Settings are Not Changed Solaris32/64 Linux32/64

If the web server connector log is still output based on the previous settings even though the log output settings were changed, it is possible that the changes were made while the web server was operating.

To change the log output settings, use the following procedure:

1. Stop the web server.
2. Change the log output settings for the web server connector using the wscadmin update-log-config subcommand.
3. Start the web server.

Communication with a Web Application Deployed to the Interstage Java EE 6 DAS Service Fails

The following may 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 6 DAS service should only be executed in the development environment. To send a large number of requests, use an IJServer cluster built in the operating environment.

Status Code "400 Bad Request" Is Notified to the Web Browser

There is a possibility that the request received by the web container and the network configuration definition items "Operation mode for access to the web container" (request-check) may not match. For details, refer to "[4.7 Preparations for Operations Performed via a Web Server](#)", "[4.8 Preparations for Operations Not Performed via a Web Server](#)", and "[7.7.3 Network Configuration Definition Items](#)" and review the operational configuration.

Status Code "403 Forbidden" Is Notified to the Web Browser

The sender of the request received by the web container may not be authorized by the web container.

Refer to the HTTP service definition item "[IP address that receives requests](#)", and check the configured settings.

Note that the IP address of the sender of the request will be output in the [HTTP Access Log](#) format "%webserver.name%".

Status Code "500 Internal Server Error" Is Notified to the Web Browser

The application processing may have failed. Check if an error was output to the server log.

File Upload Fails When Files Exceeding 2 GB are Uploaded during Servlet File Upload

If the size of the file to be sent exceeds 2 GB, the browser may set a value for the number of bytes in the Content-Length header that differs from the actual file size. In this case, the web container will throw an IOException. It is recommended that you restrict file sizes, as networks are overloaded if large files are transmitted.

Illegal exception Occurs on Executing javax.servlet.http.HttpServletRequest#getPart(String) and getParts() during Servlet File Upload

- When a ServletException is thrown

Illegal MIME type may have been specified for Content-Type of the HTTP header. When using the file upload function, you must specify multipart or form-data. Check if the specification of the Content-Type header is correct.

- When an IllegalStateException is thrown

There is a possibility that files exceeding the values specified for maxRequestSize in annotation and max-request-size in web.xml may have been uploaded, and size restrictions have been correctly applied. Add a process in the application to catch IllegalStateExceptions.

- When an IOException is thrown

An IOException is thrown when the connection upload timeout is exceeded. This signifies that upload data could not be received, for example, from the web browser and the web server connector. Check if the problem will be resolved by increasing the connection upload timeout.

No Faults Found Despite Using the Fault Monitoring Function

It may be possible that the web server connector and the Web Server Connector (for Interstage HTTP Server 2.2) are using the same web server name.

If the web server name for performing fault monitoring is being used by both the web server connector and the Web Server Connector (for Interstage HTTP Server 2.2), fault monitoring cannot be performed correctly.

Check the respective web server names using the following methods:

- For the web server connector

[Interstage Management Console] > [Interstage Application Server] > [System] > [Service] > [Web Server]

- For the Web Server Connector (for Interstage HTTP Server 2.2)

wscadmin list-web-servers subcommand

For details on the list-web-servers subcommand, refer to "[9.14.6 list-web-servers Subcommand](#)".

If the web server name for performing fault monitoring is being used by both the web server connector and the Web Server Connector (for Interstage HTTP Server 2.2), change the web server name used by the Web Server Connector (for Interstage HTTP Server 2.2).

1. Stop the web server for which you need to change the name.
2. Output the web server connector settings using the --detail option of the wscadmin list-web-servers subcommand, and register them. For details on the list-web-servers subcommand, refer to "[9.14.6 list-web-servers Subcommand](#)".
3. Delete the web server connector operating environment using the wscadmin delete-env subcommand. For details on the delete-env subcommand, refer to "[9.14.2 delete-env Subcommand](#)".
4. Open the web server list file (servers.conf) with a text editor, and change the targeted web server name to a new web server name.
5. Use the wscadmin create-env subcommand to specify a new web server name and create a web server connector operating environment. For details on the create-env subcommand, refer to "[9.14.1 create-env Subcommand](#)".
6. Use the asadmin or wscadmin command to configure the settings so that they will be the same as the web server connector settings you registered in step 2. For details on the asadmin command, refer to "[9.1.10 Subcommands - Category:Web Server Linkage](#)". Additionally, for details on the wscadmin command, refer to "[9.14 wscadmin](#)".
7. Start the web server for which you changed the name.

Distribution Targets Cannot Be Displayed Using the svmondspstat Command

It may be possible that the web server connector and the Web Server Connector (for Interstage HTTP Server 2.2) are using the same web server name.

For details, refer to "[No Faults Found Despite Using the Fault Monitoring Function](#)".

11.5 Abnormalities during EJB Application Development/Operations

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 may 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".

11.6 Abnormalities at the Time of JAX-RS Application Development/Operations

If the Deployed JAX-RS Application Cannot Be Accessed from the Client

Possible causes are as follows:

- **JAX-RS application format is incorrect**

In the JAX-RS application, either the Application subclass (javax.ws.rs.core.Application class subclass) must exist in the module, or the JAX-RS application definition must exist in the web application deployment descriptor (web.xml).

If neither exists, the resource class (Java class in which the @Path annotation is declared) in the module will be ignored, and not activated. Refer to "[3.1.10 How to Create JAX-RS Applications](#)", and include the Application subclass in the module. For details on how to define the JAX-RS application using the web application deployment descriptor (web.xml), refer to the JAX-RS specifications.

- **Request was not sent to the correct URL**

Refer to "[Access URL](#)", and check the URL that the resource class waits for.

To obtain the request URL, refer to "[4.17.3 HTTP Access Log](#)" and enable the HTTP access log.

- **MIME type is incorrect**

If the MIME type defined in the Content-Type and Accept headers used by the client in the request and the MIME type that can be processed by the resource class do not match, the request processing will fail. Either send a request that can be processed by the resource class, or review the resource class definition and processing.

- **Failed to initialize the JAX-RS application**

If the attempt to initialize the JAX-RS application fails, the web application start processing will continue, however the JAX-RS application cannot be used. Check the server log to see if an error message is output.

- **Argument type and request information do not match**

Check if a value that cannot be converted to the argument type declared in @PathParam, @QueryParam, @MatrixParam, @HeaderParam, @CookieParam, or @FormParam in the resource method is included in the request URL, header, or entity body.

If an Error Occurs When the Source Class Is Used

If an error or exception such as org.xml.sax.SAXParseException occurs when one of the following classes that implements javax.xml.transform.Source is used:

- javax.xml.transform.stream.StreamSource
- javax.xml.transform.sax.SAXSource
- javax.xml.transform.dom.DOMSource

Check the following according to the location of the declaration in the above classes:

- **If there is a declaration in the resource method parameter**

The XML data contained in the request may be invalid. Check the XML data contained in the request.

- **If there is a declaration in the resource method return value**

The XML data contained in the return value may be invalid. Check the XML data that is created or used in the application.

11.7 Abnormalities in JMS Development/Operations

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 if 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 /opt/FJSVisje6/mq/bin/imqbrokerd | grep -v "grep /opt/  
FJSVisje6/mq/bin/imqbrokerd"
```

For a non-global zone:

```
ps -ef | grep /opt/FJSVisje6/mq/bin/imqbrokerd | grep -v "grep /opt/FJSVisje6/mq/bin/  
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 /opt/FJSVisje6/mq/bin/imqbrokerd | grep -v "grep /opt/FJSVisje6/mq/bin/  
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\F3FMisje6\mq\etc\accesscontrol.properties.default
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/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\F3FMisje6\mq\etc\passwd.default
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/mq/etc/passwd.default
```

Point

- To stop the message broker using the imqcmd command, specify the default user and password, then re-execute.
- **Solaris32/64 Linux32/64**
Change the file privileges of the copy destination folder to "root/root 0644".

Note

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 "5.8 JMS Security Function".

Interstage Message Queue Broker(ISJE6) Cannot Be Stopped from Windows(R) Services **Windows32/64**

Specify the port number of the message broker you want to stop in the imqcmd shutdown bkr subcommand, and stop the message broker.

Note that as there are numerous service processes, there is a possibility that the desktop heap is depleted.

11.8 Errors that Occur during Development/Operations of Context and Dependency Injection(CDI)

java.lang.NullPointerException Is Thrown When the @Inject Annotation Is Assigned and Dependency Injection Is Performed

If the values for injection destination fields, constructor arguments, and method arguments with the @Inject annotation assigned become null during execution and a java.lang.NullPointerException is thrown when these variables are used, the possible causes are as follows:

- **CDI is not enabled**

Dependency Injection may not be functioning as CDI is not enabled, because beans.xml is not included in the application.

Store beans.xml at the following location in applications that include objects to be injected, and applications that include the injection destination class:

- If the application is a war file, under the WEB-INF directory
- If the application is a jar file, under the META-INF directory

- **Injection destination class has been instantiated by a new operator in another class**

Dependency Injection may not be functioning because the injection destination class (class that is assigned the @Inject annotation) has been instantiated by a new operator.

Change the application to inject instances using the @Inject annotation, and not the new operator.

- **CDI is used in Java EE application clients or Java SE stand-alone applications**

CDI cannot be used with Java EE application clients or Java SE stand-alone applications. Do not use CDI functions, such as Dependency Injection, to which the @Inject annotation has been assigned.

11.9 Errors that Occur during Development/Operations of Java EE Application Client

java.lang.NullPointerException Is Thrown When the appclient Command Is Executed

If java.lang.NullPointerException is thrown when the appclient command is executed, the possible causes are as follows:

- **Path of the client stub JAR file has not been specified in the -client option**

If the -client option has not been specified when the appclient command is executed, the Java EE application client cannot be executed.

Use the -client option to specify the path of the client stub JAR file, which is downloaded from the module containing the client JAR file during or after deployment, and execute the Java EE application client.

11.10 Actions to take When Thread Dumps have been Output

Thread dumps are output when there is a timeout in the maximum application processing time, the start time or the stop time of a process, or the keep alive monitoring time. For details, refer to the following:

"2.5.3 Monitoring the Maximum Application Processing Time"

"2.5.4 Process Start Time Monitoring/Stop Time Monitoring"

"2.5.5 Keep Alive Monitoring"

Example

Output examples of stack trace sections are shown below.

```
"Java Thread dump tool" prio=10 tid=0x00000000ad72000 nid=0x1918 waiting on condition
[0x0000000000000000]
  java.lang.Thread.State: RUNNABLE

"http-thread-pool-24858(16)" daemon prio=6 tid=0x00000000a87f000 nid=0x19c0 in Object.wait()
[0x0000000010a4f000]
  java.lang.Thread.State: TIMED_WAITING (on object monitor)
  at java.lang.Object.wait(Native Method)
  - waiting on <0x00000000f7396fe8> (a java.lang.Object)
  at com.sun.grizzly.util.SyncThreadPool$SyncThreadWorker.getTask(SyncThreadPool.java:381)
```

```

- locked <0x00000000f7396fe8> (a java.lang.Object)
at com.sun.grizzly.util.AbstractThreadPool$Worker.doWork(AbstractThreadPool.java:531)
at com.sun.grizzly.util.AbstractThreadPool$Worker.run(AbstractThreadPool.java:520)
at java.lang.Thread.run(Thread.java:722)

```

~Omitted~

```

"Finalizer" daemon prio=8 tid=0x00000000650c000 nid=0x1948 in Object.wait() [0x000000006e6f000]
java.lang.Thread.State: WAITING (on object monitor)
at java.lang.Object.wait(Native Method)
- waiting on <0x00000000e00a4e80> (a java.lang.ref.ReferenceQueue$Lock)
at java.lang.ref.ReferenceQueue.remove(ReferenceQueue.java:135)
- locked <0x00000000e00a4e80> (a java.lang.ref.ReferenceQueue$Lock)
at java.lang.ref.ReferenceQueue.remove(ReferenceQueue.java:151)
at java.lang.ref.Finalizer$FinalizerThread.run(Finalizer.java:177)

```

```

"Reference Handler" daemon prio=10 tid=0x0000000018f6000 nid=0x1a84 in Object.wait()
[0x0000000006a3e000]
java.lang.Thread.State: WAITING (on object monitor)
at java.lang.Object.wait(Native Method)
- waiting on <0x00000000e00a4bd0> (a java.lang.ref.Reference$Lock)
at java.lang.Object.wait(Object.java:503)
at java.lang.ref.Reference$ReferenceHandler.run(Reference.java:133)
- locked <0x00000000e00a4bd0> (a java.lang.ref.Reference$Lock)

```

```

"VM Thread" prio=10 tid=0x0000000018e8000 nid=0x1b08 runnable

```

```

"GC task thread#0 (ParallelGC)" prio=6 tid=0x000000001835800 nid=0x193c runnable

```

```

"GC task thread#1 (ParallelGC)" prio=6 tid=0x000000001837000 nid=0x196c runnable

```

```

"VM Periodic Task Thread" prio=10 tid=0x00000000663c800 nid=0x1524 waiting on condition

```

```

"RAS Control Thread" prio=10 tid=0x0000000018e6800 nid=0x14c8 runnable

```

Viewing Stack Traces

Stack traces are identical to the format output by the `java.lang.Throwable` class `printStackTrace` method in java. Accumulated in the stack from the bottom to the top, from the method call originator to the call destination, the method that is currently running is displayed at the top.

Example

```

"http-thread-pool-28292(4)" daemon prio=6 tid=0x00000000a47b800 nid=0xa18 waiting on condition
[0x00000000d6fe000]
java.lang.Thread.State: TIMED_WAITING (sleeping)
at java.lang.Thread.sleep(Native Method)
at samples.TestServlet.doGet(TestServlet.java:12)
at javax.servlet.http.HttpServlet.service(HttpServlet.java:668)
at javax.servlet.http.HttpServlet.service(HttpServlet.java:770)
~ The rest has been omitted ~

```

In the above example, line 12 of the `doGet` method of `TestServlet` is sleeping (sections in bold).

Analysis method

If a class has been created in the stack trace, check if it has unintentionally gone into standby mode. If the line number is displayed, you can check the process being executed by referring to the source code.

When performing a stack trace analysis, refer to "Tuning Guide" - "JDK/JRE Tuning" - "Tuning and Debugging Techniques" - "Stack Trace".

An example of a stack trace of a typical thread subject to investigation is shown below.

Threads currently processing servlet requests

In threads that are currently processing requests, the servlet, JSP, or filter will be processed.

Output example of threads processing servlets

In case of a servlet, the stack at the top is subject to investigation rather than the servlet method created by overriding, such as doGet or doPost.

```
"http-thread-pool-28292(4)" daemon prio=6 tid=0x00000000a47b800 nid=0xa18 runnable [0xc837e000]
 java.lang.Thread.State: RUNNABLE
   at samples.TestServlet.doGet(TestServlet.java:15)
   at javax.servlet.http.HttpServlet.service(HttpServlet.java:668)
   at javax.servlet.http.HttpServlet.service(HttpServlet.java:770)
   at org.apache.catalina.core.StandardWrapper.service(StandardWrapper.java:1550)
   at
 org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterChain.java:
 343)
   at org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterChain.java:217)
 ~ The rest has been omitted ~
```

In the above example, the stack at the top is subject to investigation rather than the doGet method of TestServlet. Here, the doGet method of TestServlet is currently processing (section in bold).

Output example of threads processing JSP

In case of JSP, it is converted to a class with a package name beginning with org.apache.jsp as shown below. The stack at the top is subject to investigation rather than the normal HttpJspBase service method. From this thread, java classes and custom tag classes called from the scriptlet section will be called.

```
"http-thread-pool-28292(2)" daemon prio=6 tid=0x00000000a9a1800 nid=0x1ac8 waiting on
 condition [0x0000000010e4e000]
 java.lang.Thread.State: TIMED_WAITING (sleeping)
   at java.lang.Thread.sleep(Native Method)
   at examples.TestTag.doEndTag(TestTag.java:41)
   at org.apache.jsp.test_jsp._jspx_meth_hello_sayHello_0(test_jsp.java:117)
   at org.apache.jsp.test_jsp._jspService(test_jsp.java:89)
   at org.apache.jasper.runtime.HttpJspBase.service(HttpJspBase.java:111)
   at javax.servlet.http.HttpServlet.service(HttpServlet.java:770)
   at org.apache.jasper.servlet.JspServletWrapper.service(JspServletWrapper.java:411)
   at org.apache.jasper.servlet.JspServlet.serviceJspFile(JspServlet.java:473)
   at org.apache.jasper.servlet.JspServlet.service(JspServlet.java:377)
   at javax.servlet.http.HttpServlet.service(HttpServlet.java:770)
 ~ The rest has been omitted ~
```

In the above example, line 41 of the doEndTag method of the custom tag TestTag called from test.jsp is sleeping (sections in bold).

Output example of threads processing filters

In case of a filter, the stack at the top is subject to investigation rather than the doFilter method created by overriding.

```
"http-thread-pool-28292(4)" daemon prio=6 tid=0x000000000919f800 nid=0x1888 waiting on
 condition [0x000000001193e000]
 java.lang.Thread.State: TIMED_WAITING (sleeping)
   at java.lang.Thread.sleep(Native Method)
 at examples.TestFilter2.doFilter(TestFilter2.java:27) (2)
   at
 org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterChain.java:
 256)
   at org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterChain.java:217)
   at examples.TestFilter1.doFilter(TestFilter1.java:23) (1)
```

```

at
org.apache.catalina.core.ApplicationFilterChain.internalDoFilter(ApplicationFilterChain.java:
256)
    at org.apache.catalina.core.ApplicationFilterChain.doFilter(ApplicationFilterChain.java:217)
    ~ The rest has been omitted ~

```

As two filters have been defined in the above example, stacks of the created filters are output in two locations, (1) and (2), and called in the order: TestFilter1, TestFilter2. In the above example, line 27 of the doFilter method of TestFilter2 is sleeping (sections in bold).

Threads during servlet session timeouts

In threads monitoring servlet session timeouts, the process that occurs during destruction of an HttpSessionListener sessionDestroyed session is performed.

```

"ContainerBackgroundProcessor[StandardEngine[glassfish-
web].StandardHost[server].StandardContext[/examples]]" daemon prio=6 tid=0x00000000b15d800
nid=0x1710 runnable [0x000000001220f000]
  java.lang.Thread.State: RUNNABLE
    at examples.TestListener.sessionDestroyed(TestListener.java:16)
    at org.apache.catalina.session.StandardSession.expire(StandardSession.java:807)
    - locked <0x00000000f87d8198> (a org.apache.catalina.session.StandardSession)
    at org.apache.catalina.session.StandardSession.expire(StandardSession.java:769)
    at org.apache.catalina.session.StandardSession.isValid(StandardSession.java:686)
    at org.apache.catalina.session.StandardManager.processExpires(StandardManager.java:997)
    at org.apache.catalina.core.StandardContext.backgroundProcess(StandardContext.java:5779)
    at org.apache.catalina.core.ContainerBase
    $ContainerBackgroundProcessor.processChildren(ContainerBase.java:1793)
    at org.apache.catalina.core.ContainerBase
    $ContainerBackgroundProcessor.run(ContainerBase.java:1782)
    at java.lang.Thread.run(Thread.java:722)

```

In the above example, line 16 of the TestListener sessionDestroyed method is currently processing (section in bold).

Note that processes called during session timeouts are not subject to automatic thread dump collection.

Interstage Java EE 6 DAS service, IJServer cluster start threads

When starting the Interstage Java EE 6 DAS service and the IJServer cluster, the init method of servlets with load-on-startup specified will be executed.

```

"main" prio=6 tid=0x000000001825000 nid=0xc40 runnable [0x000000001b8d000]
  java.lang.Thread.State: RUNNABLE
    at examples.TestServlet.init(TestServlet.java:44)
    at javax.servlet.GenericServlet.init(GenericServlet.java:244)
    at org.apache.catalina.core.StandardWrapper.initServlet(StandardWrapper.java:1453)
    at org.apache.catalina.core.StandardWrapper.load(StandardWrapper.java:1250)
    - locked <0x00000000f728af00> (a org.apache.catalina.core.StandardWrapper)
    at org.apache.catalina.core.StandardContext.loadOnStartup(StandardContext.java:5093)
    at org.apache.catalina.core.StandardContext.start(StandardContext.java:5380)
    - locked <0x00000000f7237a00> (a com.sun.enterprise.web.WebModule)
    ~Omitted~
    at com.sun.enterprise.glassfish.bootstrap.GlassFishMain.main(GlassFishMain.java:97)
    at com.sun.enterprise.glassfish.bootstrap.ASMain.main(ASMain.java:55)

```

In the above example, line 44 of the init method of TestServlet is currently processing (section in bold).

Interstage Java EE 6 DAS service, IJServer cluster stop threads

When stopping the Interstage Java EE 6 DAS service and IJServer clusters, the servlet destroy will be executed.

```

"Thread-34" daemon prio=6 tid=0x00000000a879000 nid=0x18bc runnable [0x00000000108ce000]
  java.lang.Thread.State: RUNNABLE
    at examples.TestServlet.destroy(TestServlet.java:55)
    at org.apache.catalina.core.StandardWrapper.unload(StandardWrapper.java:1769)
    - locked <0x00000000fa8d46f8> (a org.apache.catalina.core.StandardWrapper)

```

```
at org.apache.catalina.core.StandardWrapper.stop(StandardWrapper.java:2070)
at org.apache.catalina.core.StandardContext.stop(StandardContext.java:5559)
- locked <0x00000000fa8d43d0> (a com.sun.enterprise.web.WebModule)
~Omitted~
at com.sun.enterprise.v3.admin.CommandRunnerImpl$1.execute(CommandRunnerImpl.java:348)
at com.sun.enterprise.v3.admin.CommandRunnerImpl$2.run(CommandRunnerImpl.java:377)
```

In the above example, line 55 of the destroy method of TestServlet is currently processing (section in bold).

11.11 Java EE 6 Security Errors

Authentication or Authorization Fails

The following may have occurred:

- **Realm setting is invalid**

- If the realm was set in the web application, review the <realm-name> tag setting in "Web application deployment descriptor (web.xml)".
- If you have not configured the realm and are using the default realm in the web application, check the default realm settings.
- Check the file realm settings.

In such cases, refer to the following and take appropriate action.

- ["5.3 Java EE 6 Application Security Functionality"](#)
- ["5.4 Method of Operation Using the Security Functionality"](#)
- ["7.7.12 Security Definition Items"](#)

- **Interstage deployment descriptor setting is invalid**

It is possible that the user or group and the role mapping listed in the Interstage deployment descriptor are incorrect.

Refer to the following, and review the settings of the Interstage deployment descriptor.

- ["3.2.1 Interstage deployment descriptor"](#)
- ["5.4.1 Role and Role-based Access Restriction Settings"](#)
- ["5.4.2 Mapping a User/Group to a Role"](#)

- **Key file in the file realm has not been synchronized**

If the user or group in the file realm has been changed, you must restart the process and synchronize the repository.

Synchronize the repository by referring to the following, and check if the problem has been resolved.

- ["2.1.4 Repository Synchronization"](#)
- ["5.4.5 Managing File Realm Users and Groups"](#)

11.12 Log Errors

This section explains how to take action to resolve the following log-related issues.

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 typical deletion. For this, refer to "Article ID: 320081 You cannot delete a file or a folder on an NTFS file system volume" at 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.

11.13 Errors that Occur after Restoring/Importing Java EE 6 Resources

If errors occur after Java EE 6 resources have been restored or imported, it is likely that either there is a problem with the option specified in the `ij6restore` command, or there is a problem with the tasks performed after the resources have been restored or imported. Refer to "8.1.3 Restore Procedure" and "8.2.3 Import Procedure", and check if the resources were restored or imported using the correct procedure.

This section explains the possible causes and the corresponding actions to be taken to resolve the following issues:

- [Command Execution Failure When "IJ6SETOPID014" Is Output on Executing the `ij6setoperatorid` Command](#)
- [Startup Failure When "PCMI0023" Is Output on Starting the PCMI Service](#)
- [Interstage Java EE 6 DAS Service Cannot Be Started](#)
- [IJServer Cluster and Server Instance Cannot Be Started](#)
- [IJServer Cluster and Server Instance Starts, but Operations Using the `asadmin` Command Fail, or an Error Message Is Output](#)
- [Status Code "404 Not Found" Is Notified to the Web Browser](#)
- [Status Code "500 Internal Server Error" Is Notified to the Web Browser](#)
- [`applient` Command Execution Fails](#)

Command Execution Failure When "IJ6SETOPID014" Is Output on Executing the `ij6setoperatorid` Command

This message is output when the service operator user for restore or export source does not exist. Check that the same service operator user as the restore or export source exists.

Startup Failure When "PCMI0023" Is Output on Starting the PCMI Service

This error occurs if the `ij6setoperatorid` command is not executed after restore or import. Before starting the PCMI service, execute the `issetsecuritymode` and `ij6setoperatorid` commands.

Interstage Java EE 6 DAS Service Cannot Be Started

Check the server log, and take appropriate action according to the message that is output.

In particular, if the following message is output, specify the `-f` option of the `ij6restore` command for the IP address and host name configuration file to check if the network addresses of the HTTP listener, the IIOP service, and the management service of the export source environment were changed. Similarly, if the host of the message broker has been changed, you must specify the `-f` option and change the host. In this case, specify the `-f` option of the `ij6restore` command and re-import the resources.

Shutting down v3 due to startup exception: No free port within range: Host name/IP address: port number = Internal information

IJServer Cluster and Server Instance Cannot Be Started

Check the server log, and take appropriate action according to the message that is output.

As in the case of the Interstage Java EE 6 DAS service, definition item changes for the IP address and host name may not have been executed. In the same manner as when the Interstage Java EE 6 DAS service cannot be started, specify the `-f` option of the `ij6restore` command and import the resources.

In case the Interstage Java EE 6 DAS service can be started, there is no problem even if you change the definition items using the `asadmin set` subcommand.

IJServer Cluster and Server Instance Starts, but Operations Using the asadmin Command Fail, or an Error Message Is Output

If one of the following messages is output when the asadmin command is executed, the possible causes are as follows:

```
HTTP connection failed with code 403, message: Configuration access to an instance is not allowed; please connect to the domain admin server instead to make configuration changes
```

```
javax.net.ssl.SSLHandshakeException: sun.security.validator.ValidatorException: PKIX path building failed: sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid certification path to requested target
```

- Incorrect host name specified in the -h option of the ij6restore command
Specify the correct host name in the -h option of the ij6restore command, and then import the resources again.
- Certificate used in operations management has not been changed, or there is an error in the procedure
Change the CN of the certificate (s1as, glassfish-instance) used in operations management.

If an error occurs despite performing these corrective actions, use the keytool command to check if the contents of the CN for the certificate stored in the keystore or the truststore is correct.

If you are prompted to input the keystore password during the procedure, specify the master password.

Windows32/64

```
keytool -list -v -alias s1as -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\keystore.jks
keytool -list -v -alias glassfish-instance -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\keystore.jks
keytool -list -v -alias s1as -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\cacerts.jks
keytool -list -v -alias glassfish-instance -keystore C:\Interstage\F3FMisje6\var\domains\domain1\config\cacerts.jks
```

Solaris32/64 Linux32/64

```
keytool -list -v -alias s1as -keystore /var/opt/FJSVisje6/domains/domain1/config/keystore.jks
keytool -list -v -alias glassfish-instance -keystore /var/opt/FJSVisje6/domains/domain1/config/keystore.jks
keytool -list -v -alias s1as -keystore /var/opt/FJSVisje6/domains/domain1/config/cacerts.jks
keytool -list -v -alias glassfish-instance -keystore /var/opt/FJSVisje6/domains/domain1/config/cacerts.jks
```

Execute the keytool list command, and check the "Owner: CN=" section.

Status Code "404 Not Found" Is Notified to the Web Browser

When Java EE 6 resources are restored or imported, ensure that the services targeted for backup, which are displayed on using the isprintbackupsrsc command, are also restored or imported.

In particular, restore and import Interstage HTTP Server 2.2 resources and the Web Server Connector (for Interstage HTTP Server 2.2) resources, when linked to the web server.

Status Code "500 Internal Server Error" Is Notified to the Web Browser

If this problem occurs when linked to the web server, it is possible that the Web Server Connector (for Interstage HTTP Server 2.2) resources were not imported correctly.

If the following conditions apply, specify the -h option of the wscrestore command when importing the Web Server Connector (for Interstage HTTP Server 2.2) resources, and change the IP address of the IJServer cluster connection destination.

- If you specified the -f option of the ij6restore command and converted the HTTP listener network address when importing Java EE 6 resources.
- If the IP address of the Java EE 6 resource import destination machine differs from the export source, when the web server and the IJServer cluster are operating on different machines.

In this case, you must execute the wscrestore command on the machine where the web server exists.

appclient Command Execution Fails

Check if the address in sun-acc.xml is the IP address or the host name of the import destination.

Chapter 12 Migrating Java EE 6

This chapter explains how to migrate Java EE 6.

12.1 Migrating the HTTP Service/Web Container

12.1.1 Incompatibility with V11.0 or Earlier

Compared with V11.0 or earlier, the incompatibility shown below exists.

HTTP Service Definition Items

From V11.1 the following property definition item names have changed:

| Property | Definition item name | |
|---|---|--|
| | V11.0 or earlier | V11.1 or later |
| Enabling the trace log (Until V11.0, this was "Trace log") | \$ {ijserverName_instanceName_configName}.http-service.isjee-trace-logging-enabled | \$ {clusterName_instanceName_configName}.http-service.isjee-trace-log.enabled |

From V11.1, the following property default values have changed:

| Property | Default value | |
|---|-----------------------------------|-----------------------|
| | V11.0 or earlier | V11.1 or later |
| HTTP access log rotation type (Note 1) | At one-day intervals from startup | logsize (Log size) |

Note 1)

This item cannot be changed in V11.0 or earlier.

Network Configuration Definition Items

From V11.1, the following property default values have changed:

| Property | Default value | |
|--|------------------|----------------|
| | V11.0 or earlier | V11.1 or later |
| Connection upload timeout (Note 1) | 300000 | 60000 |
| Number of requests that can be processed in one connection (Note 1) | 250 | 0 |
| Keep alive timeout (Note 1) | 30 | 15 |
| Maximum number of connections (Note 1) | 4096 | 200 |

Note 1)

This item cannot be changed in V11.0 or earlier.

Default MIME Types

From V11.1, the following MIME mappings have been added as defaults:

| Extension | MIME type |
|-----------|---|
| docx | application/vnd.openxmlformats-officedocument.wordprocessingml.document |
| pptx | application/vnd.openxmlformats-officedocument.presentationml.presentation |
| xlsx | application/vnd.openxmlformats-officedocument.spreadsheetml.sheet |
| docm | application/vnd.ms-word.document.macroEnabled.12 |
| pptm | application/vnd.ms-powerpoint.presentation.macroEnabled.12 |
| xlsm | application/vnd.ms-excel.sheet.macroEnabled.12 |

12.2 Migrating JMS

This section explains the content that has changed in V11.1 JMS.

Message Broker Operation Modes

From V11.1, the message broker default operation modes used by the Interstage Java EE 6 DAS service have changed as follows:

| Version | Default operation mode |
|---------------------------|------------------------|
| V11.0 or earlier (Note 1) | EMBEDDED |
| V11.1 or later | REMOTE |

Note 1)

The message broker operation mode cannot be changed.

JMS Connection Factory Definition Items

From V11.1, the following property default values that are configured in the JMS connection factory have changed:

| Property | Default value | |
|--|------------------|----------------|
| | V11.0 or earlier | V11.1 or later |
| Initial and Minimum pool size (Note 1) | 1 | 8 |
| Maximum pool size (Note 1) | 250 | 32 |

Note 1)

This item cannot be changed in V11.0 or earlier.

To use the same value as V11.0 or earlier, use the `asadmin` command set subcommand to change the following property values:

Initial and Minimum pool size

```
resources.connector-connection-pool.{jndi-name}.steady-pool-size
```

Maximum pool size

```
resources.connector-connection-pool.{jndi-name}.max-pool-size
```



Example

Changing the JMS connection factory CF001 "Initial and Minimum pool size" to "1", and "Maximum pool size" to "250"

Windows32/64

```
C:\Interstage\F3FMisje6\bin\asadmin set resources.connector-connection-pool.CF001.steady-pool-size=1
C:\Interstage\F3FMisje6\bin\asadmin set resources.connector-connection-pool.CF001.max-pool-size=250
```

Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/bin/asadmin set resources.connector-connection-pool.CF001.steady-pool-size=1
/opt/FJSVisje6/glassfish/bin/asadmin set resources.connector-connection-pool.CF001.max-pool-size=250
```

12.3 Migrating Java SE that is Used in Java EE 6

Compared with V11.0 or earlier, the incompatibility shown below exists.

Java SE Version Default Selected During the Installation

The Java SE default used in Java EE 6 that is selected during the installation has changed from Java SE 6 to Java SE 7.

12.4 Migrating the Log Feature

Compared with V11.0 or earlier, the incompatibility shown below exists.

Number of Server Log Generations

From V11.1, the following logger definition item property ranges have changed:

| Property | Range | |
|-----------------------|------------------|----------------|
| | V11.0 or earlier | V11.1 or later |
| Number of generations | 1-9 | 1-999 |

Server Log Output Format

From V11.1, the server log output format has changed, so that some of the internal information is not output.

| Output format | |
|---|--|
| V11.0 or earlier | V11.1 or later |
| [# date and time error type internal information internal information internal information message number: message content #] | [# date and time error type internal information message number: message content #] |

Log Handler Default Value

From V11.1, the log handler default value has changed as follows:

| Output format | |
|----------------------------------|-------------------------------|
| V11.0 or earlier | V11.1 or later |
| java.util.logging.ConsoleHandler | None (there is no definition) |

12.5 Migrating the Thread Pool

Compared with V11.0 or earlier, the incompatibility shown below exists.

Thread Pool Definition Items

From V11.1, the following property default values have changed:

Web container thread pool "http-thread-pool"

| Property | Default value | |
|----------------------------|------------------|----------------|
| | V11.0 or earlier | V11.1 or later |
| Queue size (Note 1) | 4096 | 200 |
| Maximum pool size (Note 1) | 5 | 64 |
| Minimum pool size (Note 1) | 2 | 16 |

Note 1)

This item cannot be changed in V11.0 or earlier.

12.6 Migrating the IOP service

Compared with V11.0 or earlier, the incompatibility shown below exists.

Behavior when Security Manager is used

From V11.1, when executing the Java application, the behavior when Security Manager is used without setting the following as the system property has changed:

```
jdk.corba.allowOutputStreamSubclass=true
```

V11.0 or earlier

An exception does not occur.

V11.1 or later

The following exception may occur:

```
java.security.AccessControlException: access denied (java.io.SerializablePermission
enableSubclassImplementation).
```

12.7 CA Certificate Compatibility Information

CA certificates contained in the truststore

From V11.1, the following CA certificates, contained in the truststore, are no longer stored in the truststore by default. If you require a CA certificate, obtain it from a trusted CA and then store it in the truststore.

| Alias | Owner, Issuer | Start date of validity period | End date of validity period |
|-------------------------|---|-------------------------------|------------------------------|
| digicertassuredidrootca | CN=DigiCert Assured ID Root CA, OU=www.digicert.com, O=DigiCert Inc, C=US | Fri Nov 10 09:00:00 JST 2006 | Mon Nov 10 09:00:00 JST 2031 |
| trustcenterclass2caii | CN=TC TrustCenter Class 2 CA II, OU=TC TrustCenter Class 2 CA, O=TC TrustCenter GmbH, C=DE | Thu Jan 12 23:38:43 JST 2006 | Thu Jan 01 07:59:59 JST 2026 |
| thawtepremiumserverca | EMAILADDRESS=premium-server@thawte.com, CN=Thawte Premium Server CA, OU=Certification Services Division, O=Thawte Consulting cc, L=Cape Town, ST=Western Cape, C=ZA | Thu Aug 01 09:00:00 JST 1996 | Sat Jan 02 08:59:59 JST 2021 |
| swissignplatinumg2ca | CN=SwissSign Platinum CA - G2, O=SwissSign AG, C=CH | Wed Oct 25 17:36:00 JST 2006 | Sat Oct 25 17:36:00 JST 2036 |

| Alias | Owner, Issuer | Start date of validity period | End date of validity period |
|---------------------------------|--|-------------------------------|------------------------------|
| swissignsilverg2ca | CN=SwissSign Silver CA - G2, O=SwissSign AG, C=CH | Wed Oct 25 17:32:46 JST 2006 | Sat Oct 25 17:32:46 JST 2036 |
| thawteserverca | EMAILADDRESS=server-certs@thawte.com, CN=Thawte Server CA, OU=Certification Services Division, O=Thawte Consulting cc, L=Cape Town, ST=Western Cape, C=ZA | Thu Aug 01 09:00:00 JST 1996 | Sat Jan 02 08:59:59 JST 2021 |
| equifaxsecureebusinessca1 | CN=Equifax Secure eBusiness CA-1, O=Equifax Secure Inc., C=US | Mon Jun 21 13:00:00 JST 1999 | Sun Jun 21 13:00:00 JST 2020 |
| utnuserfirstclientauthemailca | CN=UTN-USERFirst-Client Authentication and Email, OU=http://www.usertrust.com, O=The USERTRUST Network, L=Salt Lake City, ST=UT, C=US | Sat Jul 10 02:28:50 JST 1999 | Wed Jul 10 02:36:58 JST 2019 |
| thawtepersonalfreemailca | EMAILADDRESS=personal-freemail@thawte.com, CN=Thawte Personal Freemail CA, OU=Certification Services Division, O=Thawte Consulting, L=Cape Town, ST=Western Cape, C=ZA | Mon Jan 01 09:00:00 JST 1996 | Sat Jan 02 08:59:59 JST 2021 |
| entrustevca | CN=Entrust Root Certification Authority, OU="(c) 2006 Entrust, Inc.", OU=www.entrust.net/CPS is incorporated by reference, O="Entrust, Inc.", C=US | Tue Nov 28 05:23:42 JST 2006 | Sat Nov 28 05:53:42 JST 2026 |
| utnuserfirsthardwareca | CN=UTN-USERFirst-Hardware, OU=http://www.usertrust.com, O=The USERTRUST Network, L=Salt Lake City, ST=UT, C=US | Sat Jul 10 03:10:42 JST 1999 | Wed Jul 10 03:19:22 JST 2019 |
| certumca | CN=Certum CA, O=Unizeto Sp. z o.o., C=PL | Tue Jun 11 19:46:39 JST 2002 | Fri Jun 11 19:46:39 JST 2027 |
| addtrustclass1ca | CN=AddTrust Class 1 CA Root, OU=AddTrust TTP Network, O=AddTrust AB, C=SE | Tue May 30 19:38:31 JST 2000 | Sat May 30 19:38:31 JST 2020 |
| equifaxsecureca | OU=Equifax Secure Certificate Authority, O=Equifax, C=US | Sun Aug 23 01:41:51 JST 1998 | Thu Aug 23 01:41:51 JST 2018 |
| quovadisrootca3 | CN=QuoVadis Root CA 3, O=QuoVadis Limited, C=BM | Sat Nov 25 04:11:23 JST 2006 | Tue Nov 25 04:06:44 JST 2031 |
| quovadisrootca2 | CN=QuoVadis Root CA 2, O=QuoVadis Limited, C=BM | Sat Nov 25 03:27:00 JST 2006 | Tue Nov 25 03:23:33 JST 2031 |
| digicerthighassuranceevrootca | CN=DigiCert High Assurance EV Root CA, OU=www.digicert.com, O=DigiCert Inc, C=US | Fri Nov 10 09:00:00 JST 2006 | Mon Nov 10 09:00:00 JST 2031 |
| secomvalicertclass1ca | EMAILADDRESS=info@valicert.com, CN=http://www.valicert.com/, OU=ValiCert Class 1 Policy Validation Authority, O="ValiCert, Inc.", L=ValiCert Validation Network | Sat Jun 26 07:23:48 JST 1999 | Wed Jun 26 07:23:48 JST 2019 |
| equifaxsecureglobalebusinessca1 | CN=Equifax Secure Global eBusiness CA-1, O=Equifax Secure Inc., C=US | Mon Jun 21 13:00:00 JST 1999 | Sun Jun 21 13:00:00 JST 2020 |

| Alias | Owner, Issuer | Start date of validity period | End date of validity period |
|------------------------------|--|-------------------------------|------------------------------|
| geotrustuniversalca | CN=GeoTrust Universal CA, O=GeoTrust Inc., C=US | Thu Mar 04 14:00:00 JST 2004 | Sun Mar 04 14:00:00 JST 2029 |
| verisignclass3ca | OU=Class 3 Public Primary Certification Authority, O="VeriSign, Inc.", C=US | Mon Jan 29 09:00:00 JST 1996 | Thu Aug 03 08:59:59 JST 2028 |
| thawteprimaryrootca3 | CN=thawte Primary Root CA - G3, OU="(c) 2008 thawte, Inc. - For authorized use only", OU=Certification Services Division, O="thawte, Inc.", C=US | Wed Apr 02 09:00:00 JST 2008 | Wed Dec 02 08:59:59 JST 2037 |
| deutsche Telekomrootca2 | CN=Deutsche Telekom Root CA 2, OU=T-TeleSec Trust Center, O=Deutsche Telekom AG, C=DE | Fri Jul 09 21:11:00 JST 1999 | Wed Jul 10 08:59:00 JST 2019 |
| utnuserfirstobjectca | CN=UTN-USERFirst-Object, OU=http://www.usertrust.com, O=The USERTRUST Network, L=Salt Lake City, ST=UT, C=US | Sat Jul 10 03:31:20 JST 1999 | Wed Jul 10 03:40:36 JST 2019 |
| geotrustprimaryca | CN=GeoTrust Primary Certification Authority, O=GeoTrust Inc., C=US | Mon Nov 27 09:00:00 JST 2006 | Thu Jul 17 08:59:59 JST 2036 |
| baltimorecodesigningca | CN=Baltimore CyberTrust Code Signing Root, OU=CyberTrust, O=Baltimore, C=IE | Wed May 17 23:01:00 JST 2000 | Sun May 18 08:59:00 JST 2025 |
| verisignclass1ca | OU=Class 1 Public Primary Certification Authority, O="VeriSign, Inc.", C=US | Mon Jan 29 09:00:00 JST 1996 | Thu Aug 03 08:59:59 JST 2028 |
| baltimorecybertrustca | CN=Baltimore CyberTrust Root, OU=CyberTrust, O=Baltimore, C=IE | Sat May 13 03:46:00 JST 2000 | Tue May 13 08:59:00 JST 2025 |
| starfieldclass2ca | OU=Starfield Class 2 Certification Authority, O="Starfield Technologies, Inc.", C=US | Wed Jun 30 02:39:16 JST 2004 | Fri Jun 30 02:39:16 JST 2034 |
| camerfirmachamberscommerceca | CN=Chambers of Commerce Root, OU=http://www.chambersign.org, O=AC Camerfirma SA CIF A82743287, C=EU | Wed Oct 01 01:13:43 JST 2003 | Thu Oct 01 01:13:44 JST 2037 |
| ttelesecglobalrootclass3ca | CN=T-TeleSec GlobalRoot Class 3, OU=T-Systems Trust Center, O=T-Systems Enterprise Services GmbH, C=DE | Wed Oct 01 19:29:56 JST 2008 | Sun Oct 02 08:59:59 JST 2033 |
| verisignclass3g5ca | CN=VeriSign Class 3 Public Primary Certification Authority - G5, OU="(c) 2006 VeriSign, Inc. - For authorized use only", OU=VeriSign Trust Network, O="VeriSign, Inc.", C=US | Wed Nov 08 09:00:00 JST 2006 | Thu Jul 17 08:59:59 JST 2036 |
| ttelesecglobalrootclass2ca | CN=T-TeleSec GlobalRoot Class 2, OU=T-Systems Trust Center, O=T-Systems Enterprise Services GmbH, C=DE | Wed Oct 01 19:40:14 JST 2008 | Sun Oct 02 08:59:59 JST 2033 |
| trustcenteruniversalcai | CN=TC TrustCenter Universal CA I, OU=TC TrustCenter Universal CA, O=TC TrustCenter GmbH, C=DE | Thu Mar 23 00:54:28 JST 2006 | Thu Jan 01 07:59:59 JST 2026 |

| Alias | Owner, Issuer | Start date of validity period | End date of validity period |
|--------------------------|--|-------------------------------|------------------------------|
| verisignclass3g3ca | CN=VeriSign Class 3 Public Primary Certification Authority - G3, OU="(c) 1999 VeriSign, Inc. - For authorized use only", OU=VeriSign Trust Network, O="VeriSign, Inc.", C=US | Fri Oct 01 09:00:00 JST 1999 | Thu Jul 17 08:59:59 JST 2036 |
| certplusclass3pprimarica | CN=Class 3P Primary CA, O=Certplus, C=FR | Thu Jul 08 02:10:00 JST 1999 | Sun Jul 07 08:59:59 JST 2019 |
| certumtrustednetworkca | CN=Certum Trusted Network CA, OU=Certum Certification Authority, O=Unizeto Technologies S.A., C=PL | Wed Oct 22 21:07:37 JST 2008 | Mon Dec 31 21:07:37 JST 2029 |
| verisignclass3g2ca | OU=VeriSign Trust Network, OU="(c) 1998 VeriSign, Inc. - For authorized use only", OU=Class 3 Public Primary Certification Authority - G2, O="VeriSign, Inc.", C=US | Mon May 18 09:00:00 JST 1998 | Wed Aug 02 08:59:59 JST 2028 |
| globalsignr3ca | CN=GlobalSign, O=GlobalSign, OU=GlobalSign Root CA - R3 | Wed Mar 18 19:00:00 JST 2009 | Sun Mar 18 19:00:00 JST 2029 |
| utndatacorpsgcca | CN=UTN - DATA Corp SGC, OU=http://www.usertrust.com, O=The USERTRUST Network, L=Salt Lake City, ST=UT, C=US | Fri Jun 25 03:57:21 JST 1999 | Tue Jun 25 04:06:30 JST 2019 |
| secomscrootca2 | OU=Security Communication RootCA2, O="SECOM Trust Systems CO.,LTD.", C=JP | Fri May 29 14:00:39 JST 2009 | Tue May 29 14:00:39 JST 2029 |
| gtecybertrustglobalca | CN=GTE CyberTrust Global Root, OU="GTE CyberTrust Solutions, Inc.", O=GTE Corporation, C=US | Thu Aug 13 09:29:00 JST 1998 | Tue Aug 14 08:59:00 JST 2018 |
| secomscrootca1 | OU=Security Communication RootCA1, O=SECOM Trust.net, C=JP | Tue Sep 30 13:20:49 JST 2003 | Sat Sep 30 13:20:49 JST 2023 |
| trustcenterclass4caii | CN=TC TrustCenter Class 4 CA II, OU=TC TrustCenter Class 4 CA, O=TC TrustCenter GmbH, C=DE | Thu Mar 23 23:10:23 JST 2006 | Thu Jan 01 07:59:59 JST 2026 |
| verisignuniversalrootca | CN=VeriSign Universal Root Certification Authority, OU="(c) 2008 VeriSign, Inc. - For authorized use only", OU=VeriSign Trust Network, O="VeriSign, Inc.", C=US | Wed Apr 02 09:00:00 JST 2008 | Wed Dec 02 08:59:59 JST 2037 |
| globalsignr2ca | CN=GlobalSign, O=GlobalSign, OU=GlobalSign Root CA - R2 | Fri Dec 15 17:00:00 JST 2006 | Wed Dec 15 17:00:00 JST 2021 |
| certplusclass2primarica | CN=Class 2 Primary CA, O=Certplus, C=FR | Thu Jul 08 02:05:00 JST 1999 | Sun Jul 07 08:59:59 JST 2019 |
| digicertglobalrootca | CN=DigiCert Global Root CA, OU=www.digicert.com, O=DigiCert Inc, C=US | Fri Nov 10 09:00:00 JST 2006 | Mon Nov 10 09:00:00 JST 2031 |
| globalsignca | CN=GlobalSign Root CA, OU=Root CA, O=GlobalSign nv-sa, C=BE | Tue Sep 01 21:00:00 JST 1998 | Fri Jan 28 21:00:00 JST 2028 |

| Alias | Owner, Issuer | Start date of validity period | End date of validity period |
|---------------------|--|-------------------------------|------------------------------|
| thawteprimaryrootca | CN=thawte Primary Root CA, OU="(c) 2006 thawte, Inc. - For authorized use only", OU=Certification Services Division, O="thawte, Inc.", C=US | Fri Nov 17 09:00:00 JST 2006 | Thu Jul 17 08:59:59 JST 2036 |
| geotrustglobalca | CN=GeoTrust Global CA, O=GeoTrust Inc., C=US | Tue May 21 13:00:00 JST 2002 | Sat May 21 13:00:00 JST 2022 |
| soneraclass2ca | CN=Sonera Class2 CA, O=Sonera, C=FI | Fri Apr 06 16:29:40 JST 2001 | Tue Apr 06 16:29:40 JST 2021 |
| verisignsaca | CN=Thawte Timestamping CA, OU=Thawte Certification, O=Thawte, L=Durbanville, ST=Western Cape, C=ZA | Wed Jan 01 09:00:00 JST 1997 | Fri Jan 01 08:59:59 JST 2021 |
| soneraclass1ca | CN=Sonera Class1 CA, O=Sonera, C=FI | Fri Apr 06 19:49:13 JST 2001 | Tue Apr 06 19:49:13 JST 2021 |
| quovadisrootca | CN=QuoVadis Root Certification Authority, OU=Root Certification Authority, O=QuoVadis Limited, C=BM | Tue Mar 20 03:33:33 JST 2001 | Thu Mar 18 03:33:33 JST 2021 |
| valicertclass2ca | EMAILADDRESS=info@valicert.com, CN=http://www.valicert.com/, OU=ValiCert Class 2 Policy Validation Authority, O="ValiCert, Inc.", L=ValiCert Validation Network | Sat Jun 26 09:19:54 JST 1999 | Wed Jun 26 09:19:54 JST 2019 |
| comodoaaaca | CN=AAA Certificate Services, O=Comodo CA Limited, L=Salford, ST=Greater Manchester, C=GB | Thu Jan 01 09:00:00 JST 2004 | Mon Jan 01 08:59:59 JST 2029 |
| addtrustqualifiedca | CN=AddTrust Qualified CA Root, OU=AddTrust TTP Network, O=AddTrust AB, C=SE | Tue May 30 19:44:50 JST 2000 | Sat May 30 19:44:50 JST 2020 |
| keynectisrootca | CN=KEYNECTIS ROOT CA, OU=ROOT, O=KEYNECTIS, C=FR | Tue May 26 09:00:00 JST 2009 | Tue May 26 09:00:00 JST 2020 |
| aolrootca2 | CN=America Online Root Certification Authority 2, O=America Online Inc., C=US | Tue May 28 15:00:00 JST 2002 | Tue Sep 29 23:08:00 JST 2037 |
| addtrustexternalca | CN=AddTrust External CA Root, OU=AddTrust External TTP Network, O=AddTrust AB, C=SE | Tue May 30 19:48:38 JST 2000 | Sat May 30 19:48:38 JST 2020 |
| verisignclass2g3ca | CN=VeriSign Class 2 Public Primary Certification Authority - G3, OU="(c) 1999 VeriSign, Inc. - For authorized use only", OU=VeriSign Trust Network, O="VeriSign, Inc.", C=US | Fri Oct 01 09:00:00 JST 1999 | Thu Jul 17 08:59:59 JST 2036 |
| aolrootca1 | CN=America Online Root Certification Authority 1, O=America Online Inc., C=US | Tue May 28 15:00:00 JST 2002 | Fri Nov 20 05:43:00 JST 2037 |
| verisignclass2g2ca | OU=VeriSign Trust Network, OU="(c) 1998 VeriSign, Inc. - For authorized use only", OU=Class 2 Public Primary Certification Authority - G2, O="VeriSign, Inc.", C=US | Mon May 18 09:00:00 JST 1998 | Wed Aug 02 08:59:59 JST 2028 |

| Alias | Owner, Issuer | Start date of validity period | End date of validity period |
|------------------------|--|-------------------------------|------------------------------|
| geotrustprimarycag3 | CN=GeoTrust Primary Certification Authority - G3, OU=(c) 2008 GeoTrust Inc. - For authorized use only, O=GeoTrust Inc., C=US | Wed Apr 02 09:00:00 JST 2008 | Wed Dec 02 08:59:59 JST 2037 |
| swissigngoldg2ca | CN=SwissSign Gold CA - G2, O=SwissSign AG, C=CH | Wed Oct 25 17:30:35 JST 2006 | Sat Oct 25 17:30:35 JST 2036 |
| entrust2048ca | CN=Entrust.net Certification Authority (2048), OU=(c) 1999 Entrust.net Limited, OU=www.entrust.net/CPS_2048 incorp. by ref. (limits liab.), O=Entrust.net | Sat Dec 25 02:50:51 JST 1999 | Wed Dec 25 03:20:51 JST 2019 |
| gtecybertrust5ca | CN=GTE CyberTrust Root 5, OU="GTE CyberTrust Solutions, Inc.", O=GTE Corporation, C=US | Fri Aug 14 23:50:00 JST 1998 | Thu Aug 15 08:59:00 JST 2013 |
| camerfirmachambersigna | CN=Global Chambersign Root - 2008, O=AC Camerfirma S.A., SERIALNUMBER=A82743287, L=Madrid (see current address at www.camerfirma.com/address), C=EU | Fri Aug 01 21:31:40 JST 2008 | Sat Jul 31 21:31:40 JST 2038 |
| camerfirmachambersca | CN=Chambers of Commerce Root - 2008, O=AC Camerfirma S.A., SERIALNUMBER=A82743287, L=Madrid (see current address at www.camerfirma.com/address), C=EU | Fri Aug 01 21:29:50 JST 2008 | Sat Jul 31 21:29:50 JST 2038 |
| entrustsslca | CN=Entrust.net Secure Server Certification Authority, OU=(c) 1999 Entrust.net Limited, OU=www.entrust.net/CPS incorp. by ref. (limits liab.), O=Entrust.net, C=US | Wed May 26 01:09:40 JST 1999 | Sun May 26 01:39:40 JST 2019 |
| godaddyclass2ca | OU=Go Daddy Class 2 Certification Authority, O="The Go Daddy Group, Inc.", C=US | Wed Jun 30 02:06:20 JST 2004 | Fri Jun 30 02:06:20 JST 2034 |
| verisignclass1g3ca | CN=VeriSign Class 1 Public Primary Certification Authority - G3, OU="(c) 1999 VeriSign, Inc. - For authorized use only", OU=VeriSign Trust Network, O="VeriSign, Inc.", C=US | Fri Oct 01 09:00:00 JST 1999 | Thu Jul 17 08:59:59 JST 2036 |
| secomevrootca1 | OU=Security Communication EV RootCA1, O="SECOM Trust Systems CO.,LTD.", C=JP | Wed Jun 06 11:12:32 JST 2007 | Sat Jun 06 11:12:32 JST 2037 |
| verisignclass1g2ca | OU=VeriSign Trust Network, OU="(c) 1998 VeriSign, Inc. - For authorized use only", OU=Class 1 Public Primary Certification Authority - G2, O="VeriSign, Inc.", C=US | Mon May 18 09:00:00 JST 1998 | Wed Aug 02 08:59:59 JST 2028 |

Chapter 13 Tutorial

This chapter explains the flow from building the production environment using Java EE 6 through to operation of the sample application. The sample application, named "Account Management Tool", is stored in the following directory:

Windows32/64

C:\Interstage\F3FMisje6\samples

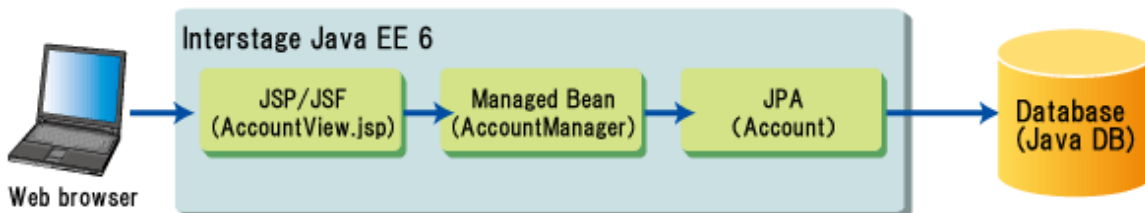
Solaris32/64 Linux32/64

/opt/FJSVisje6/samples

13.1 Application Overview (Account Management Tool)

The sample application is a simple application that manages user account information entered in the web browser in a database. According to this operation mode, the web browser accesses the web container directly, instead of using a web server.

As shown in the following figure, the request from the web browser is received by JSP, and the database is accessed using JPA.

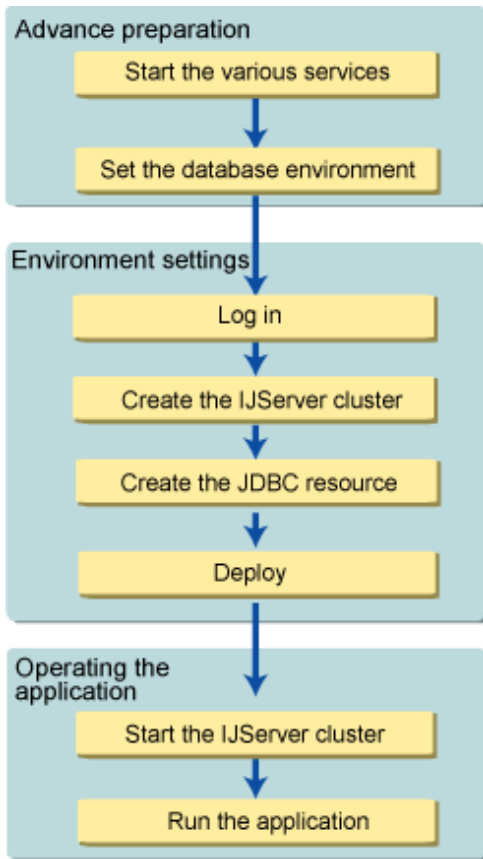


The JPA entity class is mapped to the "ACCOUNT" database table, and the information below is defined as the database columns and the mapped fields. The @Column annotation is not defined, therefore the field name will be used as the column name mapped to the database.

| Item | Field name |
|---------------------------------|------------|
| Primary key | userid |
| Field name mapped to the column | userid |
| | password |
| | fname |
| | lname |
| | email |
| | company |

13.2 Flow from Building the Production Environment Through to Application Operation

The following figure explains the flow from building the production environment through to operation of the sample application.



- When you check the behavior of the demo or sample application, you can also check the behavior of the application that has been deployed to the Interstage Java EE 6 DAS service without first creating an IJServer cluster. However, for business operations, it will be necessary to create the IJServer cluster. This chapter explains how to use the IJServer cluster.
- Java DB, which is provided by Java EE 6, is used as a simplified database for development.

13.3 Advance Preparation

13.3.1 Starting each Service

To use Java EE 6, the following services must be running:

- PCMI service
- Interstage Java EE 6 DAS service

PCMI service

Check if the PCMI service is running. If it is not, start it.

Checking if the PCMI service is running

Use the `pcmistat` command to obtain the status of the PCMI service. If it is running, "started" will be displayed.

Windows32/64

```
C:\Interstage\F3FM\pcmi\bin\pcmistat C:\Interstage\F3FM\isje6\var\pcmi\isje6
started
```

Solaris32/64 Linux32/64

```
/opt/FJSVpcmi/bin/pcmistat /var/opt/FJSVisje6/pcmi/isje6
started
```

Starting the PCMI service

If the PCMI service is not running, start it.

The operation is as follows:

Windows32/64

1. Click "Control Panel"->"Services" or "Control Panel"->"Administrative Tools"->"Services".
2. Select "Interstage PCMI(isje6)", and then click **Start**.

Solaris32/64 Linux32/64

```
/var/opt/FJSVisje6/pcmi/isje6/FJSVpcmi start
```

Interstage Java EE 6 DAS service

Start the Interstage Java EE 6 DAS service.

Starting the Interstage Java EE 6 DAS service

The operation is as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin start-domain domain1
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin start-domain domain1
```

Information

- If the asadmin start-domain command is executed while the Interstage Java EE 6 DAS service is running, the error shown below will be output. No action is required, because the Interstage Java EE 6 DAS service is already running.

There is a process already using the admin port 12011 -- it probably is another instance of a GlassFish server.
Command start-domain failed.

- The status of the Interstage Java EE 6 DAS service can be checked using the pcmilistprocesses command. If this service is running, "monitoring" will be displayed as the status for "server". For details, refer to "[9.13 pcmilistprocesses](#)".

13.3.2 Database Environment Settings

Start the database that will be used. In the explanation that follows, Java DB, which is provided with Java EE 6, is used as a simplified database for development.

Note

- Do not use Java DB in actual business operations. For details, refer to "[Appendix A Java DB](#)".
- To use another JDBC driver, refer to "[4.14.1 Setting the JDBC Driver Environment](#)".

Starting the database

To start the database, execute the command below. By default, port 1527 is used by the database. If port 1527 is already being used by another service, a startup error will occur. Stop the service that is using port 1527, and then either reexecute the command or specify the --dbport option and then specify an available port.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin start-database
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin start-database
```

Generating the database tables

In the sample application, no action is required because the tables are generated automatically.

Information

The content shown below is defined in the JPA persistence.xml file. For this reason, the tables are created automatically when the sample application is deployed and deleted automatically when the sample application is undeployed.

```
<property name="eclipselink.ddl-generation" value="drop-and-create-tables"/>
```

To predefine the tables in the Java DB

To predefine the tables in the Java DB, use the ij command, which is used to execute the database operations. The sample application provides a file for table creation. To generate the tables, specify this file when executing the ij command as shown below.

Windows32/64

```
C:\Interstage\F3FMisje6\javadb\bin\ij C:\Interstage\F3FMisje6\samples\setup\createDDL.jdbc
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/javadb/bin/ij /opt/FJSVisje6/samples/setup/createDDL.jdbc
```

To delete the tables

The sample application also provides a file for table deletion. In the same way as for generating the tables, by specifying this file as shown below, the tables will be deleted.

Windows32/64

```
C:\Interstage\F3FMisje6\javadb\bin\ij C:\Interstage\F3FMisje6\samples\setup\dropDDL.jdbc
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/javadb/bin/ij /opt/FJSVisje6/samples/setup/dropDDL.jdbc
```

The definition shown below is contained in the above files (createDDL.jdbc and dropDDL.jdbc), so 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';
```

13.4 Environment Settings

13.4.1 Login

Use the asadmin command to configure the various environment settings of Java EE 6. To use the asadmin command, log into the Interstage Java EE 6 DAS service.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin login
Enter admin user name [default: admin]> admin
Enter admin password>
Admin login information for host [localhost] and port [12011]
~Omitted~
Command login executed successfully.
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin login
Enter admin user name [default: admin]> admin
Enter admin password>
Admin login information for host [localhost] and port [12011]
~Omitted~
Command login executed successfully.
```



The asadmin command can be used without logging in. However, each time the asadmin command is executed, you will be prompted to enter the Interstage Java EE 6 DAS service admin user ID and administrator password.

13.4.2 Creating the IJServer Cluster

Create the IJServer cluster and server instance that will operate the application, and configure the operation mode.

The following three-tier operation is required to create the IJServer cluster:

1. [Creating the IJServer Cluster](#)
2. [Creating the Server Instance](#)
3. [Configuring the Operation Mode](#)

Creating the IJServer Cluster

Create the IJServer cluster "Cluster001". The operation is as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-cluster Cluster001
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-cluster Cluster001
```

This completes creation of the IJServer cluster.

Creating the Server Instance

Create the server instance "instance1" in Cluster001. The operation is as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-local-instance --cluster Cluster001 instance1
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-local-instance --cluster Cluster001 instance1
```

As shown below, the information about the server instance that was created is displayed. Make a note of the HTTP_LISTENER_PORT port number (the part in bold). This port number will be required by the web browser to access the application.

```
Rendezvoused with DAS on localhost:12011.
Port Assignments for server instance instancel:
JMX_SYSTEM_CONNECTOR_PORT=28696
HTTP_LISTENER_PORT=28292
ASADMIN_LISTENER_PORT=24858
JAVA_DEBUGGER_PORT=29009
IIOP_SSL_LISTENER_PORT=29820
IIOP_LISTENER_PORT=29700
OSGI_SHELL_TELNET_PORT=26666
HTTP_SSL_LISTENER_PORT=28393
IIOP_SSL_MUTUALAUTH_PORT=29920
Command create-local-instance executed successfully.
```

This completes creation of the server instance.

Configuring the Operation Mode

Set an operation mode in which the web browser connects to the web container directly, instead of using a web server.

The operation uses the asadmin command, and is shown below. Note that there is no need to restart the IJServer cluster.

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin set Cluster001.network-config.protocols.protocol.http-
listener-1.http.request-check=direct
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin set Cluster001.network-config.protocols.protocol.http-
listener-1.http.request-check=direct
```

This completes setting the operation mode.

13.4.3 Creating the JDBC Resource

Create the JDBC resource for accessing the database. In the sample application, the content in the JPA persistence.xml file has been defined as shown below, therefore the JDBC resource with the name "jdbc/Account" must be defined.

```
<jta-data-source>jdbc/Account</jta-data-source>
```

The following two-tier operation is required to create the JDBC resource:

1. [Creating the Connection Pool](#)
2. [Creating the JDBC Resource](#)

Creating the Connection Pool

This section explains how to create a connection pool. A connection pool such as "DerbyPool" that is already provided in the installation can also be used.

To create the connection pool, use the operation shown below.

| Item | Example of what is specified |
|---|--|
| Class name of the datasource provided by the vendor | org.apache.derby.jdbc.ClientDataSource |
| JDBC connection pool name | AccountCP |
| Resource type | javax.sql.DataSource |
| Property | |

| Item | Example of what is specified |
|----------------------|---|
| PortNumber | 1527 If the port that is used was changed by starting the database, change the value set for PortNumber. |
| User | APP |
| Password | APP |
| ServerName | localhost |
| DatabaseName | interstage-samples |
| ConnectionAttributes | ;create=true |

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jdbc-connection-pool --datasourceclassname org.apache.derby.jdbc.ClientDataSource --restype javax.sql.DataSource --property portNumber=1527:Password=APP:User=APP:serverName=localhost:databaseName=interstage-samples:connectionAttributes=\;create=true AccountCP
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-jdbc-connection-pool --datasourceclassname org.apache.derby.jdbc.ClientDataSource --restype javax.sql.DataSource --property portNumber=1527:Password=APP:User=APP:serverName=localhost:databaseName=interstage-samples:connectionAttributes=\\;create\\=true AccountCP
```



See

For details on the content that was set, refer to "9.1.14.1 create-jdbc-connection-pool Subcommand".

For details on the escape characters used, refer to "9.1 asadmin"-["Using escape characters"](#).

This completes the creation of the JDBC connection pool.

Creating the JDBC Resource

This section explains how to create a JDBC resource.

Execute the asadmin command as shown below to create the JDBC resource.

| Item | Example of what is specified |
|-----------|------------------------------|
| JNDI name | jdbc/Account |
| Pool name | AccountCP |
| Target | Cluster001 |

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin create-jdbc-resource --target Cluster001 --connectionpoolid AccountCP jdbc/Account
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin create-jdbc-resource --target Cluster001 --connectionpoolid AccountCP jdbc/Account
```

This completes the creation of the JDBC resource.

13.4.4 Deployment

Deploy the deployment module. In the explanation that follows, the enterprise application (.ear) file is deployed.

The operation is as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin deploy --target Cluster001 C:\Interstage\F3FMisje6\samples\account.ear
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin deploy --target Cluster001 /opt/FJSVisje6/samples/account.ear
```



If the APPDEP1008 error occurs when the deployment is executed, and the JDBCRA0006 error message is output as the exception information, the database startup may not have been performed normally. Using this sample application, tables are generated in the database when the deployment is executed. For this reason, the database must already be running. For details on starting the database, refer to "[13.3.2 Database Environment Settings](#)".

This completes the deployment.

This completes all environment settings. The next section explains the operation of the application.

13.5 Application Operation

13.5.1 Starting the IJServer Cluster

Starting the IJServer cluster

Start the IJServer cluster that was created. When the IJServer cluster is started, the server instance will also start.

The operation is as follows:

Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin start-cluster Cluster001
```

Solaris32/64 Linux32/64

```
/opt/FJSVisje6/glassfish/bin/asadmin start-cluster Cluster001
```

13.5.2 Executing the Application

To execute the application, perform the operation shown below.

1. Enter the following URL in the web browser to access the application:

```
http://[host name]:[HTTP port]/account
```

For the HTTP port, specify the port number obtained during the operation in "[13.4.2 Creating the IJServer Cluster](#)" - "[Creating the Server Instance](#)".

The default port number is "28292" (this is the default value when the server instance was created when no other server instances were using 28292).

Information

To check the HTTP port of the server instance, perform the following operation:

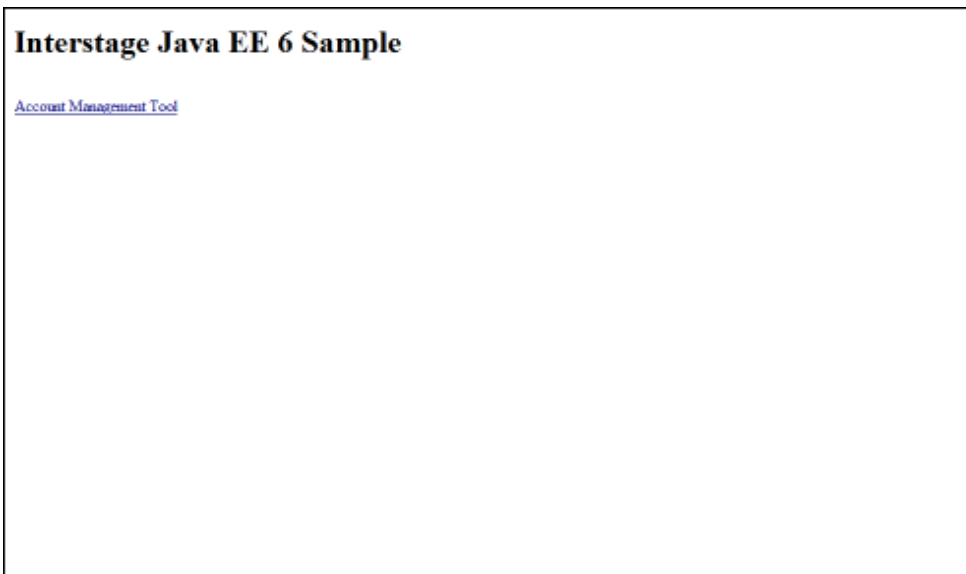
Windows32/64

```
C:\Interstage\F3FMisje6\glassfish\bin\asadmin get instance1.system-property.HTTP_LISTENER_PORT
```

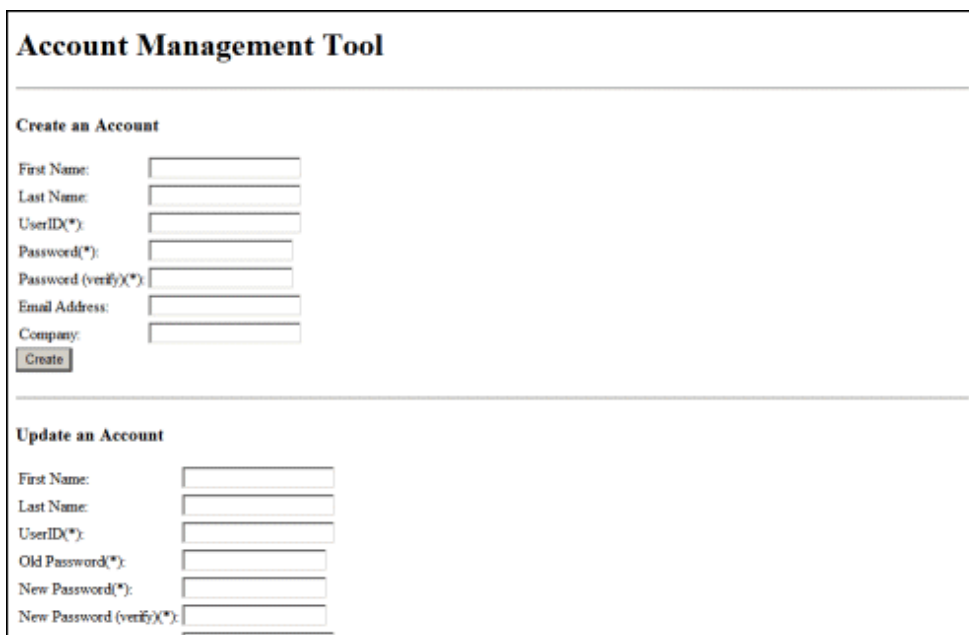
Solaris32/64 **Linux32/64**

```
/opt/FJSVisje6/glassfish/bin/asadmin get instance1.system-property.HTTP_LISTENER_PORT
```

2. The following window will be displayed. Click **Account Management Tool** to run the sample application.



The following window will be displayed. This is a simple sample application in which user accounts are registered, updated, deleted, referenced, and searched.



Information

- If a status code 400 (Bad Request) error occurs, the operation mode that is set may not be that the web server is not used. When Interstage HTTP Server 2.2 and Web Server Connector (for Interstage HTTP Server 2.2) are installed, the web server is used automatically by default. If a request is sent by the web browser directly to the web container in this state, a status code 400 (Bad Request) error will occur. For this reason, the settings must be changed so that requests from the web browser can be received by the web container directly. For details on how to configure the settings, refer to "[Configuring the Operation Mode](#)".
 - When the application is stopped, the IIServer cluster or server instance is also stopped.
 - For details on stopping the IIServer cluster, refer to "[9.1.7.4 stop-cluster Subcommand](#)". This will also stop the server instances in the IIServer cluster.
 - For details on stopping a specific server instance, refer to "[9.1.7.9 stop-local-instance Subcommand](#)".
 - For details on stopping the database, refer to "[9.1.18.2 stop-database Subcommand](#)".
-

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 V10.6. 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_10.6.

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\F3FMisje6\javadb Solaris32/64 Linux32/64 /opt/FJSVisje6/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\F3FMisje6\javadb\bin Solaris32/64 Linux32/64 /opt/FJSVisje6/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.

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:
C:\Interstage\F3FMisje6\glassfish\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:
/opt/FJSVisje6/glassfish/databases

Note: For details on the Java VM current directory, refer to the specs 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 |

Enter an IPv4 IP address. IPv6 is not supported.

The properties for which the behavior is guaranteed using this URL attribute of URLAttribute are as follows:

- create=true



Note

- 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.

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 the Interstage Java EE 6 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 "[5.2.5 Privileges and Authenticated Users](#)".

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 | OS user privileges | Users with login privilege |
|-----------|-------------------------|--------------------------|----------------------------|
| | Command execution | Server process execution | |
| ij | OS system administrator | - | No authentication |
| sysinfo | OS system administrator | - | No authentication |
| dblook | OS system administrator | - | 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 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 "[2.10.3 EJB Timer Service](#)"

| Directory | Resource directory | Owner | Group | Access privilege |
|-----------|------------------------------------|-------------------------|---------------------------------|------------------|
| ejbtimer | /opt/FJSVisje6/glassfish/databases | OS system administrator | Group that the owner belongs to | 755 |

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

When you enter the IP address for these tools, use an IPv4 IP address.

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 6 DAS Service File Configuration

The Interstage Java EE 6 DAS service file configuration is shown below.

| <--Higher directory Lower directory --> | Explanation |
|--|--|
| applications | Directory that unpacks the module after it is deployed. |
| config | Stores the domain definition information. |
| domain.xml | Definition file in which the domain definition information is stored. |
| pid | Stores the Interstage Java EE 6 DAS service process IDs. |
| current | Current directory. |
| generated | Directory that stores temporary files. |
| ejb (Note 1) | Stores EJB-related files. |
| jsp (Note 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. |
| fs370 | Stores imqbroker persistent data. (Note 3) |
| log | Stores the imqbroker log files. |
| lib | Stores the common JAR files that are used in the Interstage Java EE 6 DAS service. |
| classes | Stores the common classes that are used in the Interstage Java EE 6 DAS service. |
| logs | Stores the Interstage Java EE 6 DAS service log files. |
| server.log | Server log file. |
| access | Directory that stores HTTP access logs |
| server_access_log.txt | HTTP access log file. |
| http | Directory that stores HTTP trace logs. |
| trace.log | HTTP trace log file. |
| session-store | Directory that stores the conversational states of the application. |

Note 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.

Note 2)

The JSP compile result (Java source code) that is included in the application to be deployed is stored in this folder. However, with the default setting, the Java source code is not output. To output the Java source code, in the Interstage deployment descriptor file (glassfish-web.xml), set the "keepgenerated" property to "true".

Note 3)

The following information is stored:

- Accumulated messages
- Physical storage destination definitions
- Durable subscription definitions
- Transaction information

B.2 IJServer Cluster File Configuration

The IJServer cluster file configuration is shown below. For details on the locations of the parent directories, refer to "2.4.1 IJServer Cluster File Configuration".

| <--Higher directory Lower directory --> | Explanation |
|--|--|
| server instance name | Directory that stores the resources managed by the IJServer cluster. It is generated for each server instance. |
| applications | Directory that unpacks the synchronized module after it is deployed from the central repository. (Note 1) |
| config | Stores the synchronized definition information from the central repository. |
| pid | Saves the server instance process IDs. |
| current | Current directory. |
| generated | Directory that stores temporary files. |
| ejb (Note 2) | Stores EJB-related files. |
| jsp (Note 3) | Stores JSP-related files. |
| policy | Stores the policy files. |
| xml | Stores the WAR/EJB-JAR/RAR/JAR module definition information. |
| logs | Directory that stores log files. |
| server.log | Server log file. |
| access | Directory that stores HTTP access logs. |
| server_access_log.txt | HTTP access log file. |
| http | Directory that stores HTTP trace logs. |
| trace.log | HTTP trace log file. |
| session-store | Directory that stores the conversational states of the application. |

Note 1)

When updating JSP when the JSP auto reload function is used, update the files under this directory and under the Interstage Java EE 6 DAS service applications directory.

Note 2)

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.

Note 3)

The JSP compile result (Java source code) that is included in the application to be deployed is stored in this folder, however, in the default setting this compile result is not output. To output this Java source code, set the keepgenerated property in the Interstage deployment descriptor file (glassfish-web.xml) to "true".

B.3 PCMI Service File Configuration

The PCMI instance directory file configuration is shown below.

| <--Higher directory Lower directory --> | | Explanation |
|--|----------------------|---|
| conf | | Stores the PCMI instance definitions. For details, refer to " 2.2 PCMI Service " and " 6.2 PCMI Service Tuning ". |
| | setting.conf | PCMI service behavior definition file. |
| profile | | Stores the file that governs the Interstage Java EE 6 DAS service or server instance monitoring-related behavior. For details, refer to " 2.2 PCMI Service " and " 6.2 PCMI Service Tuning ". |
| | profile.xml | PCMI profile used in the default. |
| logs | | Stores the Interstage Java EE 6 DAS service or server instance Java VM logs under the directory for each server instance name of this directory. |
| | server instance name | Stores the Java VM log. (Note) |
| | console.log | Java VM log file. For details, refer to " 4.17.2 Java VM Log ". |
| | start.info | Records the profile information and PID information during the startup. |
| trace | | Stores the logs that trace PCMI service processing. |
| | manage | Stores the PCMI service trace logs. |
| current | | Backup destination for the current directory. |
| | server instance name | Stores the previous current directory (only when the current directory is specified for backup). |
| | old.x | Stores the previous current directory according to the specified number of generations to be backed up. |
| adapter | | Stores the definition files and script files of the exit function when the PCMI service starts/stops. |
| | gf3.properties | Exit function definition file when the PCMI service starts/stops. |
| | *.bat/*.sh | Script file executed when the PCMI service starts/stops. |
| work | | Stores the files used in PCMI instance internal processing. |
| Solaris32/64 Linux32/64 FJSVpcmi | | PCMI service RC script. |

Note)

The PCMI instance directory folder configuration will not be deleted if it is created momentarily. For this reason, if a server instance is created again using the same name, for example, it will be recorded by inheriting the log of the earlier server instance.

Appendix C Log Files

This appendix provides information about the logs that are output in Interstage Application Server Java EE 6.

| Log name | Usage | Default output | Default file name | Default path | Default size x Number of generations |
|-----------------|--|----------------|-----------------------|--|--------------------------------------|
| Server Log | IJServer cluster server log | Yes | server.log | Windows32/64 C:\Interstage\F3FMisje6\var\nodes\localhost-domain1\ <server instance="" name>\logs\<br=""></server> Solaris32/64 Linux32/64 /var/opt/FJSVisje6/nodes/localhost-domain1/ <server instance name>/logs/ | 1 MB x 1 |
| | Java EE 6 DAS service server log | Yes | server.log | Windows32/64 C:\Interstage\F3FMisje6\var\domains\domain1\logs\ Solaris32/64 Linux32/64 /var/opt/FJSVisje6/domains/domain1/logs/ | 1 MB x 1 |
| Java VM Log | IJServer cluster Java VM log | Yes | console.log | Windows32/64 C:\Interstage\F3FMisje6\var\pcmi\isje6\logs\ <server instance name>\ Solaris32/64 Linux32/64 /var/opt/FJSVisje6/pcmi/isje6/logs/<server instance name>/ | 1 MB x 1 |
| | Interstage Java EE 6 DAS service Java VM log | Yes | console.log | Windows32/64 C:\Interstage\F3FMisje6\var\pcmi\isje6\logs\server\ Solaris32/64 Linux32/64 /var/opt/FJSVisje6/pcmi/isje6/logs/server/ | 1 MB x 1 |
| HTTP Access Log | IJServer cluster HTTP access log | Yes | server_access_log.txt | Windows32/64 C:\Interstage\F3FMisje6\var\nodes\localhost-domain1\ <server instance="" name>\logs\access\<br=""></server> Solaris32/64 Linux32/64 /var/opt/FJSVisje6/nodes/localhost-domain1/ <server instance name>/logs/access/ | 1 MB x 5 |
| | Java EE 6 DAS service HTTP access log | Yes | server_access_log.txt | Windows32/64 C:\Interstage\F3FMisje6\var\domains\domain1\logs\access\ Solaris32/64 Linux32/64 /var/opt/FJSVisje6/domains/domain1/logs/access/ | 1 MB x 5 |
| HTTP Trace Log | IJServer cluster HTTP trace log | Yes | trace.log | Windows32/64 C:\Interstage\F3FMisje6\var\nodes\localhost-domain1\ <server instance="" name>\logs\http\<br=""></server> Solaris32/64 Linux32/64 /var/opt/FJSVisje6/nodes/localhost-domain1/ <server instance name>/logs/http/ | 10 MB x 10 |

| Log name | Usage | Default output | Default file name | Default path | Default size x Number of generations |
|--|--|----------------|-------------------------|---|--------------------------------------|
| | Java EE 6 DAS service HTTP trace log | Yes | trace.log | <p>Windows32/64 C:\Interstage\F3FMisje6\var\domains\domain1\logs\http\</p> <p>Solaris32/64 Linux32/64 /var/opt/FJSVisje6/domains/domain1/logs/http/</p> | 10 MB x 10 |
| Message Broker Log | Message broker log | Yes | log.txt | <p>Windows32/64 C:\Interstage\F3FMisje6\var\domains\domain1\imq\instances\<<message broker name>\log</p> <p>Solaris32/64 Linux32/64 /var/opt/FJSVisje6/domains/domain1/imq/instances/<message broker name>/log</p> | 256 MB x 10 |
| Java EE 6 Installation Log | Interstage Java EE 6 installation log | Yes | fjje6_postinstall-0.log | <p>Windows32/64 TEMP system environment variable</p> <p>Solaris32/64 Linux32/64 /tmp</p> | 1 MB x 2 |
| | Trace log when Interstage Java EE 6 is uninstalled | Yes | ijunsetup.log | <p>Windows32/64 windir system environment variable</p> <p>Solaris32/64 Linux32/64 /tmp</p> | 1 MB x 1 |
| | PCMI service installation log | Yes | pemi_postinstall-0.log | <p>Windows32/64 windir system environment variable</p> <p>Solaris32/64 Linux32/64 /tmp</p> | 1 MB x 2 |

Server Log

| | |
|------------------------|--|
| Default Output | Yes |
| Default File Name | server.log |
| Default Path | <p>IJServer cluster server log</p> <p>Windows32/64 C:\Interstage\F3FMisje6\var\nodes\localhost-domain1\<<server instance name>\logs\ Solaris32/64 Linux32/64 /var/opt/FJSVisje6/nodes/localhost-domain1/<server instance name>/logs/</p> <p>Java EE 6 DAS service server log</p> <p>Windows32/64 C:\Interstage\F3FMisje6\var\domains\domain1\logs\ Solaris32/64 Linux32/64 /var/opt/FJSVisje6/domains/domain1/logs/</p> |
| Number of Generations | Default: 1; Maximum: 999 |
| Size | Default: 1048576 bytes; Maximum: 536870912 bytes |
| Length of Record | Variable |
| Condition for Rotation | If the log size/collection time is exceeded, old information will be saved in a file that has the rotation date/time appended to the file name. |

| | |
|---|---|
| | For example, if the condition for rotation was satisfied at 15:23:30 on 7 Jan 2012, the information will be saved in a file with the following file name: server.log_2012-01-07T15-23-30 |
| Reference in the Manuals | - " 4.17 Java EE Application Logs " - " 7.7.11 Logger Definition Items " |
| Location of Settings | The log output directory, rotation conditions, number of log file generations, and log size are set using the following command: - asadmin command set-log-attributes subcommand |
| Collection target when iscollectinfo is used? | Yes |
| Remarks | None |

Java VM Log

| | |
|---|---|
| Default Output | Yes |
| Default File Name | console.log |
| Default Path | IJServer cluster Java VM log Windows32/64 C:\Interstage\F3FMisje6\var\pcmi\isje6\logs\ <server instance="" name="">\ Solaris32/64 Linux32/64 /var/opt/FJSVisje6/pcmi/isje6/logs\<server instance="" name="">/</server></server> |
| | Interstage Java EE 6 DAS service Java VM log Windows32/64 C:\Interstage\F3FMisje6\var\pcmi\isje6\logs\server\ Solaris32/64 Linux32/64 /var/opt/FJSVisje6/pcmi/isje6/logs/server/ |
| Number of Generations | Default: 1; Maximum: 100 |
| Size | Default: 1048576 bytes; Maximum: 536870912 bytes |
| Length of Record | Variable |
| Condition for Rotation | If the log size/collection time is exceeded, old information will be saved in a file that has the rotation date/time appended to the file name. For example, if the condition for rotation was satisfied at 15:23:30 on 7 Jan 2012, the information will be saved in a file with the following file name: console.log_2012-01-07T15-23-30 |
| Reference in the Manuals | - " 4.17 Java EE Application Logs " - " 7.1 PCMI Service Definition Items " |
| Location of Settings | The Java VM log settings are as follows: - PCMI Profile The PCMI Service Definition Items "Rotation Type", "Java VM Log Size", "Java VM Log Collection Time", and "Number of Generations" |
| Collection target when iscollectinfo is used? | Yes |
| Remarks | None |

HTTP Access Log

| | |
|---|--|
| Default Output | Yes |
| Default File Name | server_access_log.txt |
| Default Path | <p>IJServer cluster HTTP access log</p> <p>Windows32/64 C:\Interstage\F3FMisje6\var\nodes\localhost-domain1\<server instance="" name>\logs\access\<br=""></server>Solaris32/64 Linux32/64 /var/opt/FJSVisje6/nodes/localhost-domain1\<server <="" access="" instance="" logs="" name>="" p=""> <p>Java EE 6 DAS service HTTP access log</p> <p>Windows32/64 C:\Interstage\F3FMisje6\var\domains\domain1\logs\access\ Solaris32/64 Linux32/64 /var/opt/FJSVisje6/domains/domain1/logs/access/</p> </server></p> |
| Number of Generations | Default: 5; Maximum: 999 |
| Size | Default: 1 MB; Maximum: 512 MB |
| Length of Record | Variable |
| Condition for Rotation | <p>If the log size/collection time/one day is exceeded, old information will be saved in a file that has the file name format "server_access_log.YYYY_MM_DD-hh_mm_ss.txt".</p> <p>If the rotation is performed within one second since the previous rotation, the file name will be "server_access_log_YYYY_MM_DD-hh_mm_ss.consecutive numbering.txt".</p> <p>"YYYY_MM_DD-hh_mm_ss" is the time at which rotation is performed.</p> |
| Reference in the Manuals | <ul style="list-style-type: none"> - "4.17 Java EE Application Logs" - "7.7.2 HTTP Service Definition Items" |
| Location of Settings | <p>The log validity, number of generations, and format are set using the following command:</p> <ul style="list-style-type: none"> - asadmin command set subcommand <p>Refer to "Enabling the access log", "Format", "Number of generations", "Rotation type", "Log size", "Log collection time", and "Log output directory" in HTTP service definition items.</p> |
| Collection target when iscollectinfo is used? | Yes |
| Remarks | None |

HTTP Trace Log

| | |
|-------------------|--|
| Default Output | Yes |
| Default File Name | trace.log |
| Default Path | <p>IJServer cluster HTTP trace log</p> <p>Windows32/64 C:\Interstage\F3FMisje6\var\nodes\localhost-domain1\<server instance="" name>\logs\http\<br=""></server>Solaris32/64 Linux32/64 /var/opt/FJSVisje6/nodes/localhost-domain1\<server <="" http="" instance="" logs="" name>="" p=""> <p>Java EE 6 DAS service HTTP trace log</p> </server></p> |

| | |
|---|---|
| | Windows32/64 C:\Interstage\F3FMisje6\var\domains\domain1\logs\http\ Solaris32/64 Linux32/64 /var/opt/FJSVisje6/domains/domain1/logs/http/ |
| Number of Generations | Default: 10; Maximum: 999 |
| Size | Default: 10 MB; Maximum: 2000 MB |
| Length of Record | Variable |
| Condition for Rotation | <p>If the log size is exceeded, old information will be saved in a file that has the file name format "trace.log_YYYY_MM_DD-hh_mm_ss".</p> <p>If the rotation is performed within one second of the previous rotation, a sequence number will be appended to the file name as shown below: "trace.log_YYYY_MM_DD-hh_mm_ss.<sequence number>". "YYYY_MM_DD-hh_mm_ss" is the time at which the rotation is performed.</p> |
| Reference in the Manuals | <ul style="list-style-type: none"> - "4.17 Java EE Application Logs" - "7.7.2 HTTP Service Definition Items" |
| Location of Settings | <p>The log validity, size, and number of generations are set using the following command:</p> <ul style="list-style-type: none"> - asadmin command set subcommand <p>The HTTP service definition items "Enabling the trace log", "Log size", "Number of generations", and "Log output directory for trace log"</p> |
| Collection target when iscollectinfo is used? | Yes |
| Remarks | None |

Message Broker Log

| | |
|---|--|
| Default Output | Yes |
| Default File Name | log.txt |
| Default Path | Windows32/64 C:\Interstage\F3FMisje6\var\domains\domain1\imq\instances\<<message broker name>\log Solaris32/64 Linux32/64 /var/opt/FJSVisje6/domains/domain1/imq/instances/<message broker name>/log |
| Number of Generations | 10 |
| Size | Default: 256 MB |
| Length of Record | Variable |
| Condition for Rotation | <p>Rotation will be performed if the condition for the "imq.log.file.rolloverbytes" or "imq.log.file.rolloversecs" property related to the log function applies.</p> <p>After the files are rotated, the log files log_1.txt to log_9.txt will be created.</p> |
| Reference in the Manuals | "4.15.7 Message Broker Log" |
| Location of Settings | None |
| Collection target when iscollectinfo is used? | Yes |
| Remarks | None |

Java EE 6 Installation Log

Interstage Java EE 6 installation log

| | |
|---|---|
| Default Output | Yes |
| Default File Name | fjje6_postinstall-0.log |
| Default Path | Windows32/64 TEMP system environment variable Solaris32/64 Linux32/64 /tmp |
| Number of Generations | 2 |
| Size | Default: 1 MB |
| Length of Record | Variable |
| Condition for Rotation | If fjje6_postinstall-0.log exceeds the default size, the log information up to that point will be moved to fjje6_postinstall-1.log, and the log information from that point will be defined in fjje6_postinstall-0.log. After that, the same behavior will be repeated whenever fjje6_postinstall-0.log exceeds the default size. |
| Reference in the Manuals | " 6.15.1 Disk Space Requirements " |
| Location of Settings | None |
| Collection target when iscollectinfo is used? | No |
| Remarks | This file can be deleted. If the installation of Java EE 6 abends, this file may be used to help determine the reason for the abend. |

Trace log when Interstage Java EE 6 is uninstalled

| | |
|---|--|
| Default Output | Yes |
| Default File Name | ijunsetup.log |
| Default Path | Windows32/64 TEMP system environment variable Solaris32/64 Linux32/64 /tmp |
| Number of Generations | 1 |
| Size | Default: 1 MB |
| Length of Record | Variable |
| Condition for Rotation | Noe |
| Reference in the Manuals | " 6.15.1 Disk Space Requirements " |
| Location of Settings | None |
| Collection target when iscollectinfo is used? | No |
| Remarks | This file can be deleted. |

| | |
|--|--|
| | If the uninstallation of Java EE 6 abends, this file may be used to help determine the reason for the abend. |
|--|--|

PCMI service installation log

| | |
|---|---|
| Default Output | Yes |
| Default File Name | pcmi_postinstall-0.log |
| Default Path | Windows32/64 windir system environment variable Solaris32/64 Linux32/64 /tmp |
| Number of Generations | 2 |
| Size | 1 MB |
| Length of Record | Variable |
| Condition for Rotation | If pcmi_postinstall-0.log exceeds the default size, the log information up to that point will be moved to pcmi_postinstall-1.log, and the log information from that point will be defined in pcmi_postinstall-0.log. After that, the same behavior will be repeated whenever pcmi_postinstall-0.log exceeds the default size. |
| Reference in the Manuals | "6.15.1 Disk Space Requirements" |
| Location of Settings | None |
| Collection target when iscollectinfo is used? | No |
| Remarks | This file can be deleted. If the installation of Java EE 6 (PCMI service) abends, this file may be used to help determine the reason for the abend. |

Appendix D Port Numbers

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, use a different port number.



Note

Ephemeral Ports

The port used in Interstage Application Server may conflict with the ephemeral port.

An 'ephemeral port' is a temporary port 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 | <ul style="list-style-type: none"> - Windows Server(R) 2003: 1024-5000 - Windows Server(R) 2008 or later: 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 outside the range for the port numbers 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 used in Interstage Application Server to a range outside the ephemeral port range.

Well-known Ports (between 0 and 1023)

When setting the port numbers, ensure 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 used in the Interstage Java EE 6 DAS service.

If it is set, the port cannot be used and the Interstage Java EE 6 DAS service will not behave normally.

Port numbers bound to IPv6 addresses

For details on using port numbers bound to IPv6 addresses, refer to "Operating in an IPv6 Environment" in the "Tuning Interstage" chapter of the Tuning Guide.

The port numbers used in Interstage Application Server are shown below.

| Service Name/ Feature Name | Usage | Port number/ protocol |
|-------------------------------|---|----------------------------------|
| IISServer Cluster | Operation management HTTP listener port | 24858/tcp (This can be changed.) |
| | HTTP listener port number | 28292/tcp (This can be changed.) |
| | HTTPS listener port number | 28393/tcp (This can be changed.) |
| | IIOP listener port number | 29700/tcp (This can be changed.) |
| | SSL communication IIOP listener port number | 29820/tcp (This can be changed.) |
| | SSL communication client authentication IIOP listener port number | 29920/tcp (This can be changed.) |

| Service Name/ Feature Name | Usage | Port number/ protocol |
|--|---|--------------------------------------|
| | RMI registry connection port used by the JMX connector | 28696/tcp (This can be changed.) |
| Interstage Java EE 6 DAS Service | Operation management HTTP listener port | 12011/tcp (This can be changed.) |
| | HTTP listener port number | 28282/tcp (This can be changed.) |
| | HTTPS listener port number | 28383/tcp (This can be changed.) |
| | IIOp listener port number | 23610/tcp (This can be changed.) |
| | SSL communication IIOp listener port number | 23611/tcp (This can be changed.) |
| | SSL communication client authentication IIOp listener port number | 23612/tcp (This can be changed.) |
| | RMI registry connection port used by the JMX connector | 18686/tcp (This can be changed.) |
| Message Broker | Message broker port number | 17676/tcp (This can be changed.) |
| | admin connection service port number | undefined/tcp (This can be changed.) |
| | jms connection service port number | undefined/tcp (This can be changed.) |

IJServer Cluster

[Operation management HTTP listener port number](#)

| | |
|-------------------------------------|---|
| Fixed/Undefined | Fixed |
| Port number/protocol | 24858/tcp (This can be changed.) |
| Reference in the Manuals | "7.7.3 Network Configuration Definition Items" |
| Location of the port number setting | "Changing the Operation Management HTTP Listener Port Number" |
| Remarks | The port number is defined as a system property, and is assigned automatically when an IJServer cluster is created or a server instance is added. |

[HTTP listener port number](#)

| | |
|-------------------------------------|---|
| Fixed/Undefined | Fixed |
| Port number/protocol | 28292/tcp (This can be changed.) |
| Reference in the Manuals | "7.7.3 Network Configuration Definition Items" |
| Location of the port number setting | "2.7.1.1 Changing the HTTP Listener Port Number" |
| Remarks | The port number is defined as a system property, and is assigned automatically when an IJServer cluster is created or a server instance is added. |

[HTTPS listener port number](#)

| | |
|--------------------------|--|
| Fixed/Undefined | Fixed |
| Port number/protocol | 28393/tcp (This can be changed.) |
| Reference in the Manuals | "7.7.3 Network Configuration Definition Items" |

| | |
|-------------------------------------|---|
| Location of the port number setting | " 7.7.1.1 Changing the HTTP Listener Port Number " |
| Remarks | The port number is defined as a system property, and is assigned automatically when an IJServer cluster is created or a server instance is added. |

IIOp listener port number

| | |
|-------------------------------------|---|
| Fixed/Undefined | Fixed |
| Port number/protocol | 29700/tcp (This can be changed.) |
| Reference in the Manuals | " 7.7.1 Properties Used when Creating and Updating Definitions " |
| Location of the port number setting | Update the following system property using the asadmin set subcommand: IIOp_LISTENER_PORT |
| Remarks | The port number is defined as a system property, and is assigned automatically when an IJServer cluster is created or a server instance is added. |

SSL communication IIOp listener port number

| | |
|-------------------------------------|---|
| Fixed/Undefined | Fixed |
| Port number/protocol | 29820/tcp (This can be changed.) |
| Reference in the Manuals | " 7.7.1 Properties Used when Creating and Updating Definitions " |
| Location of the port number setting | Update the following system property using the asadmin set subcommand: IIOp_SSL_LISTENER_PORT |
| Remarks | The port number is defined as a system property, and is assigned automatically when an IJServer cluster is created or a server instance is added. |

SSL communication client authentication IIOp listener port number

| | |
|-------------------------------------|---|
| Fixed/Undefined | Fixed |
| Port number/protocol | 29920/tcp (This can be changed.) |
| Reference in the Manuals | " 7.7.1 Properties Used when Creating and Updating Definitions " |
| Location of the port number setting | Update the following system property using the asadmin set subcommand: IIOp_SSL_MUTUALAUTH_PORT |
| Remarks | The port number is defined as a system property, and is assigned automatically when an IJServer cluster is created or a server instance is added. |

RMI registry connection port number used by the JMX connector

| | |
|-------------------------------------|---|
| Fixed/Undefined | Fixed |
| Port number/protocol | 28696/tcp (This can be changed.) |
| Location of the port number setting | Update the following definition item using the asadmin set subcommand: server-config.admin-service.jmx-connector.system.port |
| Remarks | The port number is defined as a system property, and is assigned automatically when an IJServer cluster is created or a server instance is added. |

Interstage Java EE 6 DAS Service

Operation Management HTTP Listener Port Number

| | |
|-----------------|-------|
| Fixed/Undefined | Fixed |
|-----------------|-------|

| | |
|-------------------------------------|--|
| Port number/protocol | 12011/tcp (This can be changed.) |
| Reference in the Manuals | " 7.7.3 Network Configuration Definition Items " |
| Location of the port number setting | For details, refer to " Changing the Operation Management HTTP Listener Port Number ". |
| Remarks | The port number in "Port number/protocol" is the default port number. The port number value can also be specified during the installation. |

HTTP Listener Port Number

| | |
|-------------------------------------|---|
| Fixed/Undefined | Fixed |
| Port number/protocol | 28282/tcp (This can be changed.) |
| Reference in the Manuals | " 7.7.3 Network Configuration Definition Items " |
| Location of the port number setting | " 2.7.1.1 Changing the HTTP Listener Port Number " |
| Remarks | The port number in "Port number/protocol" is the default port number. |

HTTPS Listener Port Number

| | |
|-------------------------------------|--|
| Fixed/Undefined | Fixed |
| Port number/protocol | 28383/tcp (This can be changed.) |
| Reference in the Manuals | " 7.7.3 Network Configuration Definition Items " |
| Location of the port number setting | " 2.7.1.1 Changing the HTTP Listener Port Number " |
| Remarks | The port number in "Port number/protocol" is the default port number. The port number value can also be specified during the installation. |

IIOp Listener Port Number

| | |
|-------------------------------------|--|
| Fixed/Undefined | Fixed |
| Port number/protocol | 23610/tcp (This can be changed.) |
| Reference in the Manuals | " 7.7.4 IIOp Service Definition Items " |
| Location of the port number setting | Update the following definition using the asadmin command set subcommand: server-config.iio-service.iio-listener.orb-listener-1.port |
| Remarks | The port number in "Port number/protocol" is the default port number. The port number value can also be specified during the installation. |

SSL Communication IIOp Listener Port Number

| | |
|-------------------------------------|--|
| Fixed/Undefined | Fixed |
| Port number/protocol | 23611/tcp (This can be changed.) |
| Reference in the Manuals | " 7.7.4 IIOp Service Definition Items " |
| Location of the port number setting | Update the following definition using the asadmin command set subcommand: server-config.iio-service.iio-listener.SSL.port |
| Remarks | The port number in "Port number/protocol" is the default port number. The port number value can also be specified during the installation. |

SSL Communication Client Authentication IIOP Listener Port Number

| | |
|-------------------------------------|--|
| Fixed/Undefined | Fixed |
| Port number/protocol | 23612/tcp (This can be changed.) |
| Reference in the Manuals | " 7.7.4 IIOP Service Definition Items " |
| Location of the port number setting | Update the following definition using the asadmin command set subcommand: server-config.iiop-service.iiop-listener.SSL_MUTUALAUTH.port |
| Remarks | The port number in "Port number/protocol" is the default port number. The port number value can also be specified during the installation. |

RMI registry connection port number used by the JMX connector

| | |
|-------------------------------------|--|
| Fixed/Undefined | Fixed |
| Port number/protocol | 18686/tcp (This can be changed.) |
| Location of the port number setting | Update the following definition using the asadmin command set subcommand: server-config.admin-service.jmx-connector.system.port |
| Remarks | The port number in "Port number/protocol" is the default port number. The port number value can also be specified during the installation. |

Message Broker

Message Broker Port Number

| | |
|-------------------------------------|---|
| Fixed/Undefined | Fixed |
| Port number/protocol | 17676/tcp (This can be changed.) |
| Reference in the Manuals | " 4.15.3 Message Broker Operations in REMOTE mode ", " 4.15.4 Message Broker Operations in EMBEDDED mode " |
| Location of the port number setting | <p>REMOTE mode</p> <p>Set this using one of the following:</p> <ul style="list-style-type: none"> - Startup using a command Specify this in the -port option when executing the imqbrokerd command. - Startup using a service Windows32/64 Specify this in the -port option of the -args option parameter when executing the imqsvcadm install subcommand. Solaris32/64 Linux32/64 <p>Change the following rc script definition item: BROKER_PORT</p> <p>EMBEDDED mode</p> <ul style="list-style-type: none"> - Change the following definition using the asadmin command set subcommand: server-config.jms-service.jms-host.default_JMS_host.port |
| Remarks | None |

admin connection service port number

| | |
|--------------------------|--|
| Fixed/Undefined | Undefined |
| Port number/protocol | undefined/tcp (This can be changed.) |
| Reference in the Manuals | " 2.19.5 Port mapper " |

| | |
|-------------------------------------|---|
| Location of the port number setting | Using the imqbrokerd command, change the following connection service property: imq.admin.tcp.port |
| Remarks | If a port number is not set, an ephemeral port will be assigned automatically when the message broker starts. |

[jms connection service port number](#)

| | |
|-------------------------------------|---|
| Fixed/Undefined | Undefined |
| Port number/protocol | undefined/tcp (This can be changed.) |
| Reference in the Manuals | " 2.19.5 Port mapper " |
| Location of the port number setting | Using the imqbrokerd command, change the following connection service property: imq.jms.tcp.port |
| Remarks | If a port number is not set, an ephemeral port will be assigned automatically when the message broker starts. |

Appendix E Resident Processes

This appendix provides information on the Interstage Application Server resident processes that need to be monitored.

Note

Process names **Windows32/64**

"C:\Interstage" is the Interstage Application Server installation path.

This may change according to the actual installation environment that is used.

If a JVM option is changed, the process name may also change depending to the JVM option definition content.

List of resident processes

Windows32/64

| Function name | No. | Process name |
|---------------|-----|--|
| Java EE 6 | 1 | C:\Interstage\JDK6\bin\java.exe or C:\Interstage\JDK7\bin\java.exe |
| | 2 | C:\Interstage\JDK7\bin\java.exe |
| | 3 | C:\Interstage\F3FMisje6\mq\bin\imqbrokersvc.exe |

Solaris32/64

| Function name | No. | Package name | Process name |
|---------------|-----|--------------|--|
| Java EE 6 | 1 | FJSVisje6 | /opt/FJSVawjbc/jdk6/bin/java -cp /opt/FJSVisje6/glassfish/modules/glassfish.jar or /opt/FJSVawjbc/jdk7/bin/java -cp /opt/FJSVisje6/glassfish/modules/glassfish.jar |
| | 2 | FJSVpcmi | /opt/FJSVawjbc/jdk7/bin/java -classpath /opt/FJSVisje6/glassfish/lib/gf3-pcml-adapter.jar |
| | 3 | FJSVisje6 | /opt/FJSVisje6/mq/bin/imqbrokerd |

Linux32/64

| Function name | No. | Package name | Process name |
|---------------|-----|--------------|--|
| Java EE 6 | 1 | FJSVisje6 | /opt/FJSVawjbc/jdk6/bin/java -cp /opt/FJSVisje6/glassfish/modules/glassfish.jar -XX:MaxPermSize=192m -Xmx or /opt/FJSVawjbc/jdk7/bin/java -cp /opt/FJSVisje6/glassfish/modules/glassfish.jar -XX:MaxPermSize=192m -Xmx |

| Function name | No. | Package name | Process name |
|---------------|-----|--------------|---|
| | 2 | FJSVpcmi | /opt/FJSVawjbc/jdk7/bin/java -classpath /opt/FJSVisje6/glassfish/lib/gf3-pcmi-adapter.jar:/opt/FJSVpcmi/lib/pcmi.jar:/opt/FJSVpcmi/lib/pcmi-api.jar:/opt/FJSVpcmi/lib/protocol.jar com.fujitsu.interstage.pcmi.PcmiMain /var/opt/FJSVisje6/pcmi/isje6 |
| | 3 | FJSVisje6 | /opt/FJSVisje6/mq/bin/imqbrokerd |

About the processes

No. 1:

| | |
|------------------------------|--|
| Process name | <p>Windows32/64</p> <p>C:\Interstage\JDK6\bin\java.exe</p> <p>or</p> <p>C:\Interstage\JDK7\bin\java.exe</p> <p>Solaris32/64</p> <p>/opt/FJSVawjbc/jdk6/bin/java -cp /opt/FJSVisje6/glassfish/modules/glassfish.jar</p> <p>or</p> <p>/opt/FJSVawjbc/jdk7/bin/java -cp /opt/FJSVisje6/glassfish/modules/glassfish.jar</p> <p>Linux32/64</p> <p>/opt/FJSVawjbc/jdk6/bin/java -cp /opt/FJSVisje6/glassfish/modules/glassfish.jar -XX:MaxPermSize=192m -Xmx</p> <p>or</p> <p>/opt/FJSVawjbc/jdk7/bin/java -cp /opt/FJSVisje6/glassfish/modules/glassfish.jar -XX:MaxPermSize=192m -Xmx</p> |
| Number of Processes | <p>Windows32/64</p> <p>1</p> <p>Solaris32/64 Linux32/64</p> <p>1</p> |
| Functionality overview | Interstage Java EE 6 DAS service |
| Residency | If Interstage Java EE 6 is used, the process will stay resident. |
| Process monitoring | Not required |
| Clustering | Not required |
| Explanation about monitoring | Even if this service crashes, the runtime behavior will not be affected, therefore monitoring is not required. |
| Remarks | <p>If the process is running, the pid can be identified from the following files:</p> <p>Windows32/64</p> <p>C:\Interstage\F3FMisje6\var\domains\domain1\config\pid</p> <p>Solaris32/64 Linux32/64</p> <p>/var/opt/FJSVisje6/domains/domain1/config/pid</p> |

| | |
|--------------------------------|---|
| Start command/ stop command | <p>Windows32/64</p> <p>C:\Interstage\F3FMisje6\bin\asadmin start-domain C:\Interstage\F3FMisje6\bin\asadmin stop-domain</p> <p>Solaris32/64 Linux32/64</p> <p>/opt/FJSVisje6/bin/asadmin start-domain /opt/FJSVisje6/bin/asadmin stop-domain</p> |
|--------------------------------|---|

No. 2:

| | |
|--------------------------------|---|
| Process name | <p>Windows32/64</p> <p>C:\Interstage\JDK7\bin\java.exe</p> <p>Solaris32/64</p> <p>/opt/FJSVawjbc/jdk7/bin/java -classpath /opt/FJSVisje6/glassfish/lib/gf3-pcmi-adapter.jar</p> <p>Linux32/64</p> <p>/opt/FJSVawjbc/jdk7/bin/java -classpath /opt/FJSVisje6/glassfish/lib/gf3-pcmi-adapter.jar:/opt/FJSVpcmi/lib/pcmi.jar:/opt/FJSVpcmi/lib/pcmi-api.jar:/opt/FJSVpcmi/lib/protocol.jar com.fujitsu.interstage.pcmi.PcmiMain /var/opt/FJSVisje6/pcmi/isje6</p> |
| Number of processes | 1 |
| Functionality overview | Interstage PCMI service |
| Residency | Resident, if the function is used |
| Process monitoring | Required |
| Clustering | Not supported |
| Explanation about monitoring | If this service has crashed, monitoring will be required because the underlying Interstage Java EE 6 DAS service and the IJServer cluster monitoring function cannot be used. |
| Remarks | The status can be checked using the pcmistat command. |
| Start command/ stop command | <p>Windows32/64</p> <p>net start "Interstage PCMI(isje6)" net stop "Interstage PCMI(isje6)"</p> <p>Solaris32/64 Linux32/64</p> <p>[PCMI instance directory]/FJSVpcmi start [PCMI instance directory]/FJSVpcmi stop</p> |

No. 3:

| | |
|---------------------|--|
| Process name | <p>Windows32/64</p> <p>C:\Interstage\F3FMisje6\mq\bin\imqbrokersvc.exe</p> <p>Solaris32/64 Linux32/64</p> <p>/opt/FJSVisje6/mq/bin/imqbrokerd</p> |
| Number of processes | <p>Windows32/64</p> <p>1</p> <p>Solaris32/64 Linux32/64</p> |

| | |
|--------------------------------|---|
| | Depends on the operation |
| Functionality overview | Interstage Java EE 6 JMS (message broker) function. |
| Residency | Resident, if the function is used |
| Process monitoring | Required |
| Clustering | Not supported |
| Explanation about monitoring | If the Interstage Java EE 6 JMS (message broker) function is used, monitoring will be required because this is a mandatory process. |
| Remarks | Solaris32/64 Linux32/64 The number of process changes according to the number of message brokers that run as services. |
| Start command/ stop command | Start/stop using the service. |

Appendix F Software Requirements

This appendix lists the software required to use Interstage Java EE 6.

F.1 JRE/JDK Version

The Java EE 6 runtime environment supports the following JDK versions.

Server Package

- JDK 6
- JDK 7

Client Package

- JDK 6
- JRE 6
- JDK 7
- JRE 7

F.2 Application Development Environment

| No. | Function name | Product name | Version |
|-----|---|-------------------|-----------------------|
| 1 | For development of Java EE 6 applications | Interstage Studio | V10.1 or later (Note) |

Note It is recommended that the development environment (Interstage Studio) and the operating environment (Interstage Application Server) versions match.

F.3 Database



Note

- 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 "[Appendix A Java DB](#)".
- 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.
- **Solaris32/64**

In 32-bit operating systems, use the 32-bit JDBC driver. 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

| Platform | Supported JDBC driver / Version | |
|------------------------------|----------------------------------|----------------|
| Windows(R) | Symfoware Server client function | 10.1 or later |
| Solaris | Symfoware Server client function | Not determined |
| RHEL5(x86) RHEL5(Intel64) | Symfoware Server client function | 10.1 or later |
| RHEL6(x86) RHEL6(Intel64) | Symfoware Server client function | 10.1 or later |

- Use a JDBC driver that supports the same CPU architecture as Interstage.
- When using Symfoware Server, use of Symfoware Server Connection Manager is recommended.

Running Applications that use Oracle

| Platform | Supported JDBC driver / Version | |
|------------------------------|---------------------------------|------------|
| Windows(R) | Oracle JDBC Driver | 11.2, 12.1 |
| Solaris | Oracle JDBC Driver | 11.2, 12.1 |
| RHEL5(x86) RHEL5(Intel64) | Oracle JDBC Driver | 11.2, 12.1 |
| RHEL6(x86) RHEL6(Intel64) | Oracle JDBC Driver | 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\$
- Use a JDBC driver that supports the same CPU architecture as Interstage.
- When Oracle is used, the Oracle Universal Connection Pool (UCP) for JDBC function can be used.
 - When using the Oracle Universal Connection Pool (UCP) for JDBC function, set "false" for the Pooling detail attribute of the connection pool. **(Note)**
- The JDBC 4.1 specification features supported in Oracle JDBC Driver version 12.1 cannot be used.

Note) For details on how to configure the detail attributes of the connection pool, refer to "[7.5.1 JDBC Connection Pool Definition Items](#)".

Running Applications that use SQL Server

| Platform | Supported JDBC driver / Version | |
|------------|--------------------------------------|-----|
| Windows(R) | Microsoft SQL Server JDBC Driver | 3.0 |
| | Microsoft JDBC Driver for SQL Server | 4.0 |
| Solaris | Microsoft SQL Server JDBC Driver | 3.0 |

| Platform | Supported JDBC driver / Version | |
|----------------|--------------------------------------|-----|
| | Microsoft JDBC Driver for SQL Server | 4.0 |
| RHEL5(x86) | Microsoft SQL Server JDBC Driver | 3.0 |
| RHEL5(Intel64) | Microsoft JDBC Driver for SQL Server | 4.0 |
| RHEL6(x86) | Microsoft SQL Server JDBC Driver | 3.0 |
| RHEL6(Intel64) | Microsoft JDBC Driver for SQL Server | 4.0 |

- This cannot be used when the global transaction functionality is used.
- If an SQL Server JDBC Driver is used with Windows Server(R) 2003 x64 Editions, apply Service Pack 4 or later.

Appendix G Message Information

This appendix explains the messages that must be monitored.

G.1 Event Log Windows32/64

In Windows, the messages that must be monitored are output to an event log.

To monitor errors notified in this product using a monitoring tool, for example, monitor the event log error messages based on the information shown below.

Specific error message information

| Log type | Source name | Monitoring condition |
|-------------|-------------|--------------------------------|
| application | F3FMisje6 | Error type is not "INFO" level |

G.2 System Log Solaris32/64 Linux32/64

In Solaris/Linux, the messages that must be monitored are output to a system log.

To monitor errors notified in this product using a monitoring tool, for example, monitor the system log error messages based on the information shown below.

Specific error message information

| Output format | Label/Message ID | Monitoring condition |
|---------------|------------------|--------------------------|
| Format1 | ISJE6 | Error type is not "INFO" |

Appendix H Functional Comparison with Interstage HTTP Server 2.2

In the explanation here, the functions that can be used in Java EE 6 in an operation mode that does not use a web server are compared with the Interstage HTTP Server 2.2 functions.

If there is no corresponding function in Java EE 6, use an operation mode where communications pass through a web server, and use the Interstage HTTP Server 2.2 function instead.

For details on the operation modes, refer to the following section:

["4.6 Operation Configurations for Accessing Applications"](#)

H.1 Functional Differences between Interstage HTTP Server 2.2 and Java EE 6

| Interstage HTTP Server 2.2 function | | Corresponding Java EE 6 function |
|-------------------------------------|-----------------------|--|
| Authentication and access control | User authentication | Authentication and access control can be performed using the Java EE application security function. For details, refer to " 5.3 Java EE 6 Application Security Functionality ". |
| | Client authentication | Client authentication is supported. For details, refer to " 5.3 Java EE 6 Application Security Functionality ". |
| | IP access control | <ul style="list-style-type: none"> - Specifying an IP address that allows connections A remote address that receives requests can be set. For details, refer to "7.7.3 Network Configuration Definition Items". - Specifying an IP address that denies connections There is no corresponding function. Implement this using a function such as a firewall. |
| SSL | | In Java EE 6, SSL communication can be performed using an HTTPS listener. For details, refer to " 5.3.3 SSL ". |
| Specifying an IPv6 address | | In the IPv6 format, the HTTP listener and the HTTPS listener can be bound with the socket. |
| Public root directory settings | | The settings can be configured by deploying applications with "/" context roots. |
| Virtual host | | The virtual server corresponds to this function. However, virtual servers cannot be created or deleted. |
| Rewriting URLs | Virtual directory | There is no corresponding function. To make a directory public, it must be deployed as a web application. |
| | Redirect function | There is no corresponding function. If the redirect function is required in Java EE 6, implement this using a servlet application. |
| | Rewrite function | There is no corresponding function. |
| Server status monitoring function | | There is no corresponding function. |
| Multiple web servers function | | To separate processes per business, this can be realized by creating one IJServer cluster per business. |
| Content compression function | | There is no corresponding function. If the content compression function is required in Java EE 6, implement this using a servlet filter, for example. |

| Interstage HTTP Server 2.2 function | | Corresponding Java EE 6 function |
|-------------------------------------|--|--|
| Proxy | Forward proxy | There is no corresponding function. |
| | Reverse proxy | There is no corresponding function. |
| Connection/communication | Number of concurrent connections from the client | This can be set using the following "thread pool definition item" properties: <ul style="list-style-type: none"> - Minimum pool size - Maximum pool size |
| | Number of communication processes | For details, refer to " 7.7.15 Thread Pool Definition Items ". |
| | Privileges for communication processes | The effective privileges for IIServer cluster processes can be changed. For details, refer to " 5.2.3 Effective User for Processes ". |
| Directory list settings | | There is no corresponding function. |
| MIME type | Default MIME type settings | There is no corresponding function. Specify the required MIME type in the mime-mapping tags of web.xml. |
| | MIME type definition | This can be specified in the mime-mapping tags of web.xml. |
| Default HTML file settings | | This can be specified in the welcome-file-list tags of web.xml. |
| HTTP Keep-Alive function | | This can be set using the following network settings properties: <ul style="list-style-type: none"> - Keep alive timeout - Number of requests that can be processed in one connection For details, refer to " 7.7.3 Network Configuration Definition Items ". |
| User tracking function | | A possible alternative to this is the output of the session ID to the HTTP access log. For details, refer to " 4.17.3 HTTP Access Log ". |
| Language-based content negotiation | | There is no corresponding function. If the content negotiation function is required in Java EE 6, implement this using a Java EE application. |
| Allow execution of CGI programs | | There is no corresponding function. In Java EE 6, use a Java EE application instead of the CGI program. |
| Logs | Cookie log settings | There is no corresponding function. If you need to record the cookie information in Java EE 6, output the cookie information to the HTTP access log. For details, refer to " 4.17.3 HTTP Access Log ". |
| | Customizing messages | The HTTP access log output content can be customized. For details, refer to " 4.17.3 HTTP Access Log ". |
| | Access logs | This can be supported using the HTTP service access logs. For details, refer to " 4.17.3 HTTP Access Log ". For details on the differences in output content between Interstage HTTP Server and Java EE 6, refer to " H.2 Differences between the Access Log Output Items ". |
| | Error logs | The Java EE 6 error messages are output to the server log and the Java VM log. |
| | Trace logs | This can be supported using the HTTP service trace logs. For details, refer to " 4.17.4 HTTP Trace Log ". |

H.2 Differences between the Access Log Output Items

Regarding the access log output items, the Java EE 6 definition items that are similar to the items output in Interstage HTTP Server 2.2 are shown below.

[Request information]

| Interstage HTTP Server 2.2 output items | Java EE 6 output items | | |
|--|------------------------|--|---------|
| | Item name | Description | Default |
| %h | %client.name% | Outputs the IP address or host name of the client or proxy server, etc. | Yes |
| %l | %client.id% | Outputs the personal information about a user returned from the client. However, "-" is always output. | Yes |
| %u | %auth-user-name% | <ul style="list-style-type: none"> - When a web server is used Outputs the user name authenticated by the web server. - When a web server is not used Outputs the user name authenticated by the web container. <p>If a user name has not been assigned to the request, "-" is output.</p> | Yes |
| %t | %datetime% | Outputs the date and time when the log was output. | Yes |
| %r | %request% | Outputs the content of the request line. | Yes |
| %s | %status% | Outputs the status code. | Yes |
| %b | %response.length% | Outputs the length of the response data. The units are bytes. | Yes |
| \${Host}i | %headers.host% | Outputs the content of the HOST header. | Yes |
| % {Cookie}i | %cookies.JSESSIONID% | Outputs the session ID. | Yes |
| %T %D | %time-taken% | Outputs the time taken (in milliseconds) from when the request processing started until the web application processing finished. This also includes the following: | Yes |

| Interstage HTTP Server 2.2 output items | Java EE 6 output items | | |
|--|-------------------------------|--|---------|
| | Item name | Description | Default |
| | | - JSP compile for the initial access, class loading, and initialization processing for servlets, etc. | |
| %P | %thread.id% | Outputs the thread ID. | Yes |
| | %thread.name% | Outputs the thread name. | Yes |
| - | %webserver.name% | - When a web server is used Outputs the web server IP address. - When a web server is not used Outputs the IP address of the client or proxy server, etc. | Yes |
| {Cookie}i | %cookies.any% | Outputs the content of the Cookie header. For "any", specify the name of the cookie to be output as defined in RFC2616, distinguishing uppercase and lowercase. | |
| {Foobar}i | %headers.any% | Outputs the request HTTP header value. For "any", specify any valid value for the request HTTP header as defined in RFC 2616, using lowercase. | |
| {Referer}i | %headers.referer% | Outputs the content of the Referer header. | |
| {User-agent}I | %headers.user-agent% | Outputs the content of the User-agent header. | |
| - | %response.headers.any% | Outputs the response HTTP header value. For "any", specify any valid value for the response HTTP header as defined in RFC2616, using lowercase. | |
| {Set-Cookie}o | %response.headers.set-cookie% | Outputs the content of the Set-Cookie header in a response message. | |
| %m | %http-method% | Outputs the HTTP method. | |
| %U | %http-uri% | Outputs the URI. | |
| %H | %http-version% | Outputs the protocol version. | |
| - | %query-str% | Outputs the query string. | |

