Interstage

FUJITSU

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Business Process Manager
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BPEL User's Guide

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About this Manual

This manual describes how to configure and administrate BPEL Functions.

Intended Audience

This manual is intended for Interstage BPM Super Users, who are administrators managing Interstage BPM Server. It assumes that the reader has a working knowledge of the following:

- Operating system administration
- Database administration

Structure of this Manual

The structure of this manual is as follows:

- **Chapter 1 BPEL Functions**
  - Explains BPEL Functions.
- **Chapter 2 BPEL Function Setup**
  - Explains the widgets which are displayed on the screen.
- **Chapter 3 BPEL Function Operation**
  - Explains the additional widgets of the various functions.
- **Chapter 4 BPEL Function Application Development**
  - Gives notes on using UI widgets.
- **Appendix A Messages Starting with WSBPEL**
- **Glossary**

1 BPEL Functions

This chapter explains the BPEL functions.

1.1 Functional Overview

BPEL functions allow users to develop definitions that conform to WS-BPEL2.0 and then execute business processes based on those definitions.

Business process execution function

The business process execution function links multiple services according to a specified BPEL definition and executes them as one service, thus achieving a one-step service.

BPEL Editor

BPEL Editor creates BPEL definitions that conform to WS-BPEL2.0.

BPEL Editor enables the user to use Interstage Studio to code the various service connections and linkage logic visually. When this editor is used, detailed knowledge of WS-BPEL2.0 conventions is not needed. Users can easily create flows that conform to WS-BPEL2.0 conventions just by connecting icons corresponding to services and branching conditions.

1.2 Usable WS-BPEL2.0 Elements and their Functions

The following table shows the elements regulated under WS-BPEL2.0 and which of these are supported by BPEL. Do not use the unsupported elements.

Usable WS-BPEL2.0 elements

Kind	Element name	Supported	Overview
Basic activities	Invoke	Yes	Invokes services
	Receive	Yes	Receives sent messages
	Reply	Yes	Returns replies to received messages
	Assign	Yes	Sets values for the variables
	Throw	Yes	Generates a Fault and posts error information
	Wait	No	Stops processes for a specified interval or until a specified date and time

Kind	Element name	Supported	Overview
	Empty	No	An activity that does not process anything
	Exit	No	Ends a business process instance immediately
	Rethrow	No	Throws a received Fault again. Rethrow can be used only within Fault Handlers.
	Compensate	No	Invokes reverse processing for an activity defined in the Compensation Handler
Structure-building activities	Sequence	Yes	Executes the activities defined in Sequence, one at a time in sequence
	Flow	Yes	Executes the multiple activities defined in Flow simultaneously and in parallel
	If	Yes	Defines conditional operations and executes activities in accordance with the conditions
	While	Yes	While the condition remains true, repeatedly executes the activity defined in While
	ForEach	No	Defines conditional operations and executes multiple branches in accordance with conditions
	RepeatUntil	No	While the condition remains true, repeatedly executes the activity defined in RepeatUntil
	Scope	No	Defines the effective range of variables, CorrelationSets, etc.
	Pick	No	Waits for message reception and executes activities in accordance with messages
Other elements	Variables	Yes	Defines messages and variables
	PartnerLinks	Yes	Defines services linked by Invoke/Receive/Reply
	FaultHandlers	Yes	Receives error information
	CorrelationSets	Yes	Associates the messages received using Receive with business process instances
	EventHandlers	No	Accepts elements from external sources that accord with Scope
	CompensationHandler	No	Defines reverse processing for activities. The

Kind	Element name	Supported	Overview
			CompensationHandler is invoked using Compensate.

The following sections provide overviews of each of the supported elements.

1.2.1 Basic Activities

Invoke

Invokes services. The invoked services are those defined in PartnerLinks. Only request and reply type services are supported. The parameters to be passed to an invoked service and the replies to be posted from the service can be delivered by means of the variables defined in Variables.

Receive

Receives messages sent to business processes. The received messages are stored in the variables defined in Variables. Since only request and reply type business processes are supported, ensure that business processes start with Receive and end with Reply. Ensure that the Receive that starts a business process is set to create a new business process instance.

Reply

Returns the reply to the message received using Receive. There are two types of replies that can be posted: a normal reply indicating normal termination, and a malfunction reply to notify that termination was due to an error. For a normal reply, the reply message is delivered by means of a variable defined in Variables. Since only request and reply type business processes are supported, ensure that business processes start with Receive and end with Reply.

Assign

Sets or copies the values for the variables defined in Variables. Only XPath1.0 can be used as reference to XML.

Throw

Generates a Fault and posts error information. A Fault provides the malfunction type and additional error information. The posted error information is received by Fault Handlers.

1.2.2 Structure-building Activities

Sequence

Executes the activities defined in Sequence, one at a time in sequence from top to bottom. When the last activity in Sequence is executed, the Sequence ends.

Flow

Executes the multiple activities defined in Flow simultaneously and in parallel. After all the activities within Flow have been executed, the next activity after the Flow is executed.

Link entry conditions and entry conditions for activities that are Link destinations can be defined in Links attached to activities within the Flow.

If

Defines conditional operations and executes activities in accordance with the conditions. Elseif and Else can be used within If to define multiple conditions and operations.

While

While the condition remains true, repeatedly executes the activity defined in While. Since condition evaluation is performed in advance, if the condition evaluation result is False, While ends without ever executing the activity.

1.2.3 Other Elements

Variables

Defines the variables used within business processes.

Variables are used to store the messages sent to and received from other services by means of Invoke, Receive, and Reply, and to store the status of business processes.

PartnerLinks

Defines services linked by Invoke/Receive/Reply.

PartnerLinks has two attributes: The partnerRole attribute is a service invoked from a business process using Invoke. The myRole attribute is the business process itself made into a service so that it can be invoked from other services using Receive/Reply.

FaultHandlers

Receives error information. FaultHandlers can receive errors for various types of faults and perform error processing for each.

CorrelationSets

Associates messages with business process instances.

CorrelationSets defines where the identifiers, used to associate business process instances with messages, are set within transmitted messages.

To use Invoke to invoke a service, and then to use Receive at the instance that executed the Invoke to receive messages from the invoked service, define the same CorrelationSets in the Invoke and Receive properties and set Yes as the initiate attribute of Invoke. Using these settings, the identifier at the location

within the send message defined by CorrelationSets is stored when Invoke is executed, and Receive routes to the same instance only those messages that have the same identifier defined within the message.

The allowed values for the initiate attribute are shown below. Note that the identifiers used must be unique.

- Yes: Stores identifiers
- Join: Stores identifiers only if an identifier is not already stored
- No: Does not store identifiers

1.3 System Configuration

Application development server

This server creates the business applications, such as BPEL definitions and Web services.

Use Interstage Studio and BPEL Editor to develop the applications.

Application server

This server executes the business processes.

The application server invokes various Web services in accordance with the BPEL definitions created using BPEL Editor and registered to the business process execution function.

Interstage Management Console

This Console starts and stops the business process execution function.

Interstage Management Console starts and stops the business process execution function by starting and stopping the IJServer where the business process execution function is deployed.

1.4 Task Flow from Installation to Operation

The procedure for creating the environment for a system that uses BPEL functions is as follows:

1.4.1 System Design

Business Design

- Clarify the business requirements
- Clarify the aspects shown below for the tasks to be executed by the system. Also, extract the elements related to actual system architecture and application design in accordance with the business content.
  - Business requirements
  - Scope, type of the data handled by the business
  - Anticipated processing times for jobs, business processes, etc.
  - Number of BPEL definitions (types of business processes) for implementing business

    - Number of business processes executed per day
- Design the services
- Map the BPEL definitions and Web services required for actual operation of the clarified business content
- Design the access permissions
- Design which of the two permissions shown below will be given to which users during application development and during operation:

Access permissions

Permission	Overview
System administrator	This is the administrator of the overall system (operating system Administrator permission). Can build the system, set the environment, and start and stop the IJServer to which the business process execution function is deployed. Can execute business processes by means of the BPEL activation application.

Design the system

- Design the hardware environment
  Select hardware on the basis of the elements extracted during business design. Additionally, if the server where the business is developed and the server used for day-to-day operation are built separately, each of these servers needs to be designed.
  Refer **Operating Environment** in the **Operation Design Edition** of Chapter 2 **BPEL Function Setup** for server disk capacities.
- Design the software environment
  Design the execution environment, including the degree of concurrency, for the business process execution function.

1.4.2 System Environment Creation

Create the environment for the business process execution function on the basis of the system design. Refer **BPEL Function Setup** in Chapter 2 **BPEL Function Setup** for details concerning creating the system environment.

1.4.3 Application Development

Create the BPEL definitions, the Web services that will be invoked by the business process execution function, and the BPEL activation application. Refer **BPEL Function Application Development** in Chapter 4 **BPEL Functional Application Development**.

1.4.4 Operation

The start operation is required in order for the business process execution function to operate, and the stop operation is required in order to end its operation. Refer to **BPEL Function Operation** in Chapter 3 **BPEL Function Operation** for operation details.

2 BPEL Function Setup

In order to use the BPEL function, the business process execution environment must then be created. This chapter describes how to create and delete the business process execution environment.

2.1 Creating the Business Process Execution Environment

Use the procedure below to create the business process execution environment. The following sections describe these steps.

2.1.1 Creating the IJServer

Create the IJServer that will operate the business process execution function.

Use the Interstage Management Console or `isj2eeadmin` commands to create the IJServer.

Refer **Creating an IJServer** under **Operating J2EE Applications** in the Interstage Application Server "J2EE User's Guide" for the IJServer creation method.

Set the IJServer settings as shown below:

The initial values need not be changed for the other settings.

Refer to **IJServer Definition Files** under **isj2eeadmin** under **J2EE Operation Commands** in the **J2EE Edition** of the Interstage Application Server "Reference Manual (Command Edition)" for details of IJServer.

IJServer Definition Settings

Setting	Tag name in IJServer definition file	Allowed Value
WorkUnit name	<IJServer><Name>	Specify any name that identifies the business process execution function.
WorkUnit type	Not applicable	Specify "IJServer".
Version	<IJServer><Version>	Use initial value (9.0).
IJServer type	<IJServer><Type>	Use initial value (ONE).
WorkUnit automatic start	AutomaticStart	Specify whether or not the business process execution function starts when Interstage is started.
HotDeploy usage	<IJServer><HotDeploy>	Use initial value (FALSE).
Settings related to class loader	Under <IJServer><ClassLoader>	Use initial value (enabled)
Process concurrency	<IJServer><HotDeploy><ProcessConcurrency>	Use initial value (1).

Setting	Tag name in IJServer definition file	Allowed Value
Retry count reset time	<IJServer><HotDeploy><RetryCount ResetTime>	Specify any value that suits operations.
Java version	<IJServer><HotDeploy><JavaVersion >	Specify 5.0.
JavaVM options	<IJServer><HotDeploy><JavaComm andOptions>	Specify the options that suit the business.
Control when out of memory occurs for Java heap / Java Permanent area	<IJServer><HotDeploy><Reactivation OfProcessAtOutOfMemory>	Specify the control that suits operations.
Application maximum processing time	<IJServer><HotDeploy><Processing Time><MaximumProcessingTime>	Specify the monitoring time for the business process maximum processing time. Since the business process execution time varies in different environments, depending on the BPEL definition content, or the processing time of the invoked Web services specify a value that suits the business to be executed. Set a time that is greater than the monitoring time set in the ESI_WSBPEL_TIMEOUT environment variable.
Control when application maximum processing time is exceeded	<IJServer><HotDeploy><Processing Time><TerminateProcessModeForTi meout>	Specify the action taken when business process execution is not completed before the application maximum processing time is exceeded.
Environment variable setting (ESI_WSBPEL_TIME OUT setting)	<IJServer><Common><Environment Variables><Variable>	Specify the monitoring time for the business process maximum processing time in the ESI_WSBPEL_TIMEOUT environment variable. Since the business process execution time varies in different environments, depending on the BPEL definition content, the processing time of the invoked Web services, etc., specify a value that suits the business to be executed. Specify a monitoring time in the range 0 to 2147483647 (Unit: seconds). The initial value is 300 seconds. The monitoring time initial value (300 seconds) is used if the

Setting	Tag name in IJServer definition file	Allowed Value
		ESI_WSBPEL_TIMEOUT environment variable is not set or if 0 is set.
Servlet container IP address	<IJServer><Web><IPAddress>	If the Web server and the IJServer run on separate machines, specify the IP address used for the Servlet container to connect to the Web server connector.
Servlet container timeout	<IJServer><Web><Timeout>	Specify a value that suits operations. Specify a value that is greater than the application maximum processing time (MaximumProcessingTime).
Maximum number of Servlet container connections	<IJServer><Web><Connection><MaxConnection>	Specify a value that is the same or greater than the maximum number of simultaneous processes (ThreadConcurrency).
Maximum number of simultaneous processes	<IJServer><Web><ThreadConcurrency>	Specify the maximum number of simultaneous processes for the business process execution function.
Web server IP address	<IJServer><Web><Www><AcceptedHosts>	Specify if the Web server and the WorkUnit run on separate machines.
Web server container transmission timeout	<IJServer><Web><Www><Timeout>	Specify a value that is greater than the application maximum processing time (MaximumProcessingTime) set in the IJServer environment settings at the connection destination machine.
Limit for number of connections to Servlet container	<IJServer><Web><Www><AllowedMaxConnections>	Specify the maximum number of connections per Servlet container to suit operations.
KeepAlive between connector and Servlet container	<IJServer><Web><Www><AllowKeepAlive>	Use initial value (TRUE).

IJServer definition file example

```
<?xml version="1.0" encoding="UTF-8" standalone="yes"?>
<Isj2eeIjserverDefinition>
    <IJServer>
        <Name>BpelServer</Name>
        <Common>
             <EnvironmentVariables>
                 <Variable>ESI_WSBPEL_TIMEOUT=600</Variable>
             </EnvironmentVariables>
```

```
            <JavaVersion>5.0</JavaVersion>
            <JavaCommandOptions>-Xms16m -Xmx256m</JavaCommandOptions>
            <ProcessingTime>
                <MaximumProcessingTime>0</MaximumProcessingTime>
            </ProcessingTime>
        </Common>
        <Web>
            <Www>
                <WebServers>
                    <WebServer>
                        <Name>FJapache</Name>
                    </WebServer>
                </WebServers>
                <Timeout>2147483647</Timeout>
            </Www>
        </Web>
    </IJServer>
</Isj2eeIjserverDefinition>
```

2.1.2 Deploying the Business Process Execution Function

Deploy the business process execution function to the created IJServer.

Use the Interstage Management Console or the `ijsdeployment` command to deploy the function.

The business process execution function to be deployed is the package shown below.

Business process execution function package

Function	Package name	Directory	Type
Business process execution function	ode.war	`<IBPM media>\misc\bpel` Example: `D:\misc\bpel`	Web application

2.2 Deleting the Business Process Execution Environment

Use the following procedure to delete the business process execution environment.

2.2.1 Stopping the IJServer

To delete the IJServer that runs the business process execution function, first stop the relevant IJServer. This step is not required if the IJServer is already stopped.

Use the Interstage Management Console or the `isstopwu` command to stop the IJServer. Refer Interstage Management Console Help or "isstopwu" in the Reference Manual (Commands)" for details.

2.2.2 Deleting the IJServer

Delete the IJServer that runs the business process execution function.

Use the Interstage Management Console or the `isj2eeadmin` command to delete the IJServer. Refer the Interstage Application Server Interstage Management Console Help or to "isj2eeadmin" in the Reference Manual (Commands)" for the IJServer deletion method.

Deletion of the IJServer also deletes the business process execution function deployed to that IJServer and the BPEL definitions deployed to the business process execution function.

2.3 Setup Logger

Copy logging module.

Copy from:

```
<IBPM media>\misc\bpel\NTEventlogAppender.dll
```

Copy to:

```
<Interstage install dir>\bin
```

Check the `%PATH%` Strings whether above path is defined.

2.4 Delete Logger

Remove above path from PATH environment value, and reboot system.

Thereafter, delete the `DLL` file.

2.5 Install BPEL Editor

This is required for Interstage Studio V9.2, and installing "Java EE Development Function" by the custom installation. This will be found in:

```
<Interstage Studio install dir>\IDE\0902_WB34\eclipse
```

Copy the folders of IBPM medium to Interstage Studio.

Copy from:

```
<IBPM media>\misc\bpel\studio\plugins
<IBPM media>\misc\bpel\studio\features
```

Copy to:

```
<Interstage Studio install dir>\IDE\0902_WB34\eclipse
```

2.6 Uninstall BPEL Editor

Close the Interstage Studio window; and delete following files from Interstage Studio directory.

Delete files:

<Interstage Studio install dir>\IDE\0902_WB34\eclipse

├──features

│ └──org.eclipse.bpel.feature_0.4.0

```
│           feature.xml
│
└───plugins
        org.eclipse.bpel.apache.ode.deploy.model_0.4.0.jar
        org.eclipse.bpel.apache.ode.deploy.ui_0.4.0.jar
       org.eclipse.bpel.apache.ode.runtime_0.4.0.jar
       org.eclipse.bpel.common.model_0.4.0.jar
       org.eclipse.bpel.common.ui_0.4.0.jar
       org.eclipse.bpel.model_0.4.0.jar
       org.eclipse.bpel.runtimes_0.4.0.jar
       org.eclipse.bpel.ui_0.4.0.jar
       org.eclipse.bpel.wsil.model_0.4.0.jar
```

3 BPEL Function Operation

This chapter describes the procedures, from start to stop, for using the business process execution function, and also explains troubleshooting.

3.1 Flow of Operations

Refer to the following procedures for tasks that use the business process execution function.

The following procedures are described:

Starting operation

To start operation, start the IJServer to which the business process execution function was deployed.

Use the Interstage Management Console or the `isstartwu` command to start the IJServer.

For details, refer the Interstage Application Server "Using the Interstage Management Console" or to "isstartwu" in "WorkUnit Management Commands".

Operation

Execute the BPEL activation application to execute business processes.

Use the status of business applications, such as the BPEL activation application, and services to determine whether or not an operation that uses `islistwu -a` command.

For details, refer the Interstage Application Server "Using the Interstage Management Console" or to "islistwu" in "WorkUnit Management Commands".

Stopping operation

To stop operation, stop the IJServer to which the business process execution function was deployed.

Stop operation when all tasks that use the BPEL function have completed.

When operation is stopped, the following message is output to the IJServer container log, but there is no problem.

- `log4j:ERROR LogMananger.repositorySelector` was null likely due to error in class reloading.

Use the Interstage Management Console or the `isstopwu` command to stop the IJServer.

For details, refer to the Interstage Application Server "Using the Interstage Management Console" or to "isstopwu" in "WorkUnit Management Commands".

3.2 Troubleshooting

This section describes troubleshooting for the business process execution function.

Business process execution function hangup occurs.

If there is an error in the BPEL definitions, the business process might continually perform the retry operation internally while repeatedly outputting the messages below, thus causing a hangup.

If this occurs, wait until all normally operating business processes are completed and then stop the IJServer. Restart the IJServer and undeploy the relevant BPEL definitions. Follow the action advised in the messages below to correct the BPEL definitions.

- WSBPEL-17208
- WSBPEL-17211
- WSBPEL-20201
- WSBPEL-27242
- WSBPEL-27244

Instance routing using CorrelationSet is not performed correctly.

If expected routing does not occur even though instance routing is defined using CorrelationSet in the BPEL definitions, consider the following possibilities. Check whether any of these apply and correct the BPEL definitions accordingly.

- CorrelationSet properties are set incorrectly or are not set.
- The identifier used to associate instances with messages is not unique.
- The [Correlation] definition in the Invoke/Receive/Reply properties is incorrect.

When a business process is invoked by the BPEL activation application, an exception other than java.rmi.RemoteException occurs.

If an exception other than java.rmi.RemoteException occurs when a business process is invoked by the BPEL activation application, there may be an error in the variable type combination for the From and To variables used in copying the BPEL definition Assign variable. Check and correct the BPEL definition.

Refer to **Assign** under **Creating and Editing BPEL definitions** under **How to Create BPEL Definitions Using the BPEL Editor** under **BPEL Function Application Development** in the **BPEL User's Guide** for the combination of From and To variable types in Assign.

The log4j error message is output to the container log of the IJServer where the business process execution function is deployed.

When the IJServer running the business process execution function is stopped, but there is no problem with operation, the following `log4j` error message may be output to the IJServer container log.

- `log4j:ERROR LogMananger.repositorySelector` was null likely due to error in class reloading, using `NOPLoggerRepository.`

4 BPEL Function Application Development

Before BPEL functions can be used, the following must first be configured:

- BPEL definitions
- The Web service to be invoked from the business process execution function
- The BPEL activation application that starts the business process execution function.

This appendix describes how to develop and configure these items.

4.1 Application Development Flow

Use the procedure below to develop applications.

4.2 Web Service Development

Develop the Web service that is to be invoked from the business process execution function, and deploy it to the environment (IJServer) that executes the Web service.

4.2.1 Creating a Web Service

Use Interstage Studio to create the Web service application (the business process execution function that invokes the Web service takes the position of the Web service client).

4.2.2 Deploying the Web Service to an IJServer

Deploy to the IJServer that is the Web service execution environment, the Web service that is to be invoked from the business process execution function.

Use either the Interstage Management Console or the `ijsdeployment` command to create the IJServer and deploy the Web service.

4.3 BPEL Definition Development

Developing a BPEL definition involves acquiring the WSDL of the Web service invoked from the business process execution function, using the BPEL editor to create the BPEL definitions, and deploying the BPEL definitions to the business process execution environment. The following sections describe how to perform each of these steps.

4.3.1 Acquiring the Web Service WSDL

Acquire the public WSDL of the Web service invoked from the business process execution function.

4.3.2 Creating the BPEL Definitions

Refer to **Using the BPEL Editor to Create BPEL Definitions** for details on how to create the BPEL definition.

4.3.3 Deploying to the Business Process Execution Environment

Deploy the created BPEL definitions to the business process execution environment. The BPEL definition files are deployed to the directory specified as shown below.

Deploy the BPEL definitions to only one business process execution environment. Do not deploy the same definitions multiple times.

In the following case, deploy the invocation source BPEL definitions and the invocation destination BPEL definitions to different business process execution environments:

If Invoke is used to invoke from the BPEL definitions a service that was created by the BPEL definitions

If BPEL definitions that have been deployed once are to be changed, temporarily undeploy the definitions and then deploy the new BPEL definitions. Refer to **Undeployment from the Business Process Execution Environment** for details on how to undeploy.

BPEL definition files to be deployed

BPEL definition files to be deployed	Deployment directory
BPEL definitions (.bpel) WSDL definitions (.wsdl) deploy.xml	`[J2EE common directory]\ijserver\[IJServer name]\apps\ode.war\WEB-INF\processes\[any directory]`

The [J2EE common directory] default is `C:\Interstage\J2EE\var\deployment`.

If the WSDL definitions import other WSDL definitions, also deploy the imported WSDL definitions.

If multiple BPEL definition files are to be deployed, use [any directory] to deploy each BPEL definition file to a different directory.

4.3.4 Undeployment from the Business Process Execution Environment

Deployed BPEL definitions that are no longer required or need to be replaced can be undeployed. Follow the procedure below to undeploy the definitions.

1. Start the IJServer to which the business process execution function is deployed.
   If the business process execution function that is to be undeployed is deployed to an IJServer that is not running, start the IJServer.
   Use the Interstage Management Console or the `isstartwu` command to start the IJServer.
2. Check that all tasks using the BPEL definitions that are to be undeployed have finished.
   To confirm that all relevant tasks have finished executing, check the status of services and business applications, such as the BPEL activation application.
3. Delete the BPEL definition files.
   Delete the BPEL definition files that are to be undeployed, shown below, from the directories immediately above ([deployed directory] in the tables below).

BPEL definition file undeployment

BPEL definition files to be undeployed	Directory to be deleted
BPEL definitions (.bpel) WSDL definitions (.wsdl) deploy.xml	`[J2EE common directory]\ijserver\[IJServer name]\apps\ode.war\WEB-INF\processes\[deployed directory]`

The [J2EE common directory] default is `C:\Interstage\J2EE\var\deployment`.

4.4 BPEL Activation Application Development

BPEL activation application development involves creating the BPEL definition WSDL, creating the BPEL activation application, and deploying them to the environment (IJServer) that executes the BPEL activation application. The method for each of these steps is described below.

4.4.1 Creating the BPEL Definition WSDL

Create the BPEL definition WSDL. Copy to any directory the WSDL definitions (`.wsdl`) that were generated when the BPEL editor created the BPEL definitions, and correct the connection destination URL as shown below.

- Correct the connection destination URL.
  Edit the host name and port number (underlined in red in the example below) of the connection destination URL of the SOAP server used to execute BPEL definitions.
  - Delete the `plnk:partnerLinkType` tags Delete the `plnk:partnerLinkType` tags from start to finish.
  - Edit the connection destination URL.
    Edit the host name and port number of the connection destination URL of the SOAP server used to execute BPEL definitions.
    Set the host name (full domain) and port number of the Web server which is linked to from the IJServer to which the business process execution function is deployed.

```
<?xml version="1.0"?>
<definitions name="ReceiveReplyAssign"
        targetNamespace="http://sample.bpel.org/bpel/sample"
        xmlns:tns="http://sample.bpel.org/bpel/sample"
        xmlns:plnk="http://docs.oasis-open.org/wsbpel/2.0/plnktype"
        xmlns="http://schemas.xmlsoap.org/wsdl/"
        xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/">
           :
           :
<!-- ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
    PARTNER LINK TYPE DEFINITION
     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ -->
Delete <plnk:partnerLinkType name="ReceiveReplyAssign">
Delete <plnk:role name="ReceiveReplyAssignProvider" portType="tns:ReceiveReplyAssign"/>
Delete </plnk:partnerLinkType>
```

```
   <binding name="ReceiveReplyAssignBinding"
       type="tns:ReceiveReplyAssign">
           :
           :
    <service name="ReceiveReplyAssignService">
        <port name="ReceiveReplyAssignPort" binding="tns:ReceiveReplyAssignBinding">
              <soap:address
location="http://hostname.fujitsu.co.jp:8080/ode/processes/ReceiveReplyAssign" />
        </port>                                                    Edit
    </service>
</definitions>
```

4.5 Using the BPEL Editor to Create BPEL Definitions

This section describes how to use the BPEL editor to create BPEL definitions.

4.5.1 BPEL Definition Creation Flow

Follow the procedure below to create the BPEL definitions.

4.5.2 Starting Interstage Studio

Use the procedure below to start the Interstage Studio Java EE workbench.

1. From the [Start] menu, select [Programs] - [Interstage] - [Studio V9.2] - [Java EE development], and then select [Interstage Studio Java EE].
2. Workspace selection
   The workspace launcher screen is displayed. Specify the workspace.
   Refer to **Workbench Overview** in the Interstage Studio "Java EE Workbench User's Guide" for information concerning workspaces.

4.5.3 Creating a Project

Create a project that will create the BPEL definitions.

1. From the menu bar, select [File]-[New]-[Other]. This displays the [New] wizard. Select [BPEL Project], and then click [Next].
2. Confirm or enter the following settings, and then click [Finish].

[New BPEL Project] settings

Setting	**Values**
Project name	Any name that does not duplicate another project name
Project contents	Leave initial settings unchanged (select the Use defaults checkbox).
Target runtime	Leave initial settings unchanged (None).

Setting	Values
Configuration	Leave initial settings unchanged (Custom).

4.5.4 Creating a BPEL Process File

1. From the menu bar, select [File]-[New]-[Other]. This displays the [New] wizard. Select [BPEL Process File], and then click [Next].
2. Confirm or enter the following settings, and then click [Next].

[Create a BPEL Process File] Settings

Setting	Value
BPEL Process Name	Any name that does not duplicate another BPEL process file name
Namespace	BPEL process Namespace
Template	Select "Synchronous BPEL Process". Other templates are not supported.
Abstract Process	Leave initial settings unchanged (not selected). Abstract processes are not supported.

3. Select the project that is to create the BPEL process file, and then click [Finish].
4. The template BPEL definitions and WSDL definitions shown below are generated.
   a. BPEL definitions
   Template BPEL definitions

Element type	Element	Name	Overview
Activity	Receive	receiveInput	Receives requests from the BPEL activation application
	Reply	replyOutput	Replies to the BPEL activation application
Other	PartnerLinks	client	This BPEL definition PartnerLink corresponding to receiveInput / replyOutput
	Variables	Input	Variable that stores the messages received by receiveInput
		Output	Variable that stores the reply messages sent by replyOutput

b. WSDL definitions
The WSDL definition files that define the interface corresponding to receiveInput/replyOutput in the above BPEL definitions

4.5.5 Editing the WSDL Definitions

Follow the procedure below to edit the WSDL definitions for the BPEL definitions.

Do not maximize the outline view while using the WSDL editor to edit WSDL definitions.

Editing template WSDL definitions

Perform the following steps to edit the template WSDL definitions:

1. Start the WSDL editor.
   In the [Project explorer] view, right click the WSDL definition that is to be edited, and then click [Open] in the popup menu. For information on the WSDL editor, refer to **WSDL Editor** under **Creating a WSDL** in **Tasks** under **Developing a Web Service Application** in the Interstage Studio "Java EE Workbench User's Guide", or refer to Interstage Studio Help.
2. Create the service.
   Create a service corresponding to the defined port type.
   To create a service, right-click in the blank part under the WSDL editor [Design] tab and, then click [Add service] in the popup menu. If required, set a name for the service after it is added.
3. Set the port.
   Set a port for the created service.
   Click a port (the part where NewPort is displayed) in the service definition under the WSDL editor [Design] tab, and then enter the following settings at [General] in the property view.

   Port settings

Setting	**Value**
Name	Any name that does not duplicate another port name
Binding	The next procedure sets the binding, so do not set it here.
Address	Set the following address: **http://localhost:80/ode/processes/[a** name unique within system]
Protocol	Select SOAP.

4. Create binding.
   Create a binding that relates the port type and the service.
   For the binding in the port properties of Step 3, select [New]. This displays the [New binding] dialog box. Set any binding name and then click [OK].
   Bindings are displayed under the [Design] tab of the WSDL editor. At [General] in the property view, click the [Generate binding contents] button. In the [Binding wizard] that is displayed next, enter the settings shown below and then click [Finish].

[Binding wizard] settings

Setting	Value
Port type	Select the port type to be related.
Protocol	Select SOAP.
Overwrite existing binding information	Leave initial settings unchanged (not selected)
SOAP binding option	Leave initial settings unchanged (document literal)

5. Define messages.
   Define the port type message.
   Under the [Design] tab of the WSDL editor, click the arrow displayed on the right side of the message shown for the port type. This displays the inline schema screen. For details on how to define the message type, refer to **WSDL Editor** under **Creating a WSDL** in **Tasks** under **Developing a Web Service Application** in the Interstage Studio "Java EE Workbench User's Guide", or refer to Interstage Studio Help.
6. Save the WSDL definition.
   From the menu bar, select [File]-[Save] to save the WSDL definition.
7. Close the WSDL editor.
   From the menu bar, select [File]-[Close] to closethe WSDL editor.

Adding WSDL definitions for additional Receive/Reply pairs

If Receive/Reply pairs are added to a template BPEL definition, perform the following steps to add one corresponding WSDL definition for each of the added pairs.

1. Add WSDL definitions.
   From the menu bar, select [File]-[New]-[Other]. This displays the [New] wizard.
   Select [WSDL], and then click [Next].
2. Confirm or enter the following settings, and then click [Next].

   [New WSDL file] screen settings

Setting	Value
Enter or select a new folder	Set a new directory for creating the WSDL definition.
Filename	Set the name of the WSDL definition that is being added.

3. Confirm or enter the following settings, and then click [Next].

   [New WSDL file] options screen settings

Setting	Value
Target namespace	The BPEL process Namespace
Prefix	Prefix for the target namespace
Create WSDL skeleton	Leave initial settings unchanged (selected)
Protocol	Leave initial settings unchanged (SOAP).
SOAP binding option	Leave initial settings unchanged (document literal)

4. The WSDL definitions are generated.
5. Set the port type. Set the port type for the generated WSDL definition. If required, set the port type name and input/output parameters.
6. Set the service. Set the service for the generated WSDL definition. If required, set the service name.
7. Set the port. Set the port for the generated WSDL definition. Click the port in the service definition under the WSDL editor [Design] tab, and then enter the settings shown below at [General] in the property view.

   Port settings

Setting	Value
Name	Any name that does not duplicate another port name
Binding	The next procedure sets the binding, so do not set it here.
Address	Set the following address: http://localhost:80/ode/processes/[name unique within system]
Protocol	Select SOAP.

8. Define port type messages. Under the [Design] tab of the WSDL editor, click the arrow displayed on the right side of the message shown for the port type. This displays the inline schema screen.

For details on how to define the message type, refer to **WSDL Editor** under **Creating a WSDL** in **Tasks** under **Developing a Web Service Application** in the Interstage Studio "Java EE Workbench User's Guide", or refer to Interstage Studio Help, for the definition method.

9. Save the WSDL definition. From the menu bar, select [File]-[Save] to save the WSDL definition.
10. Close the WSDL editor. From the menu bar, select [File]-[Close] to close the WSDL editor.

Note: While setting type in the port type Message part, ensure that Element is set as the type in the port type Message part.

4.5.6 Creating/Editing the BPEL Definitions

The BPEL editor is used to create / edit BPEL definitions. The method for doing this is described below.

In the [Property explorer] view of the BPEL editor, right click the BPEL definition that you want to edit, and then click [Open] in the popup menu.

This section describes the items shown in the table below:

BPEL definition elements

Type	Element name	Overview
BPEL definition property settings		Sets BPEL definition properties
Basic activities	**Invoke**	Invokes services
	Receive	Receives sent messages
	Reply	Returns replies to received messages
	Assign	Sets values for the variables
	Throw	Generates a Fault and posts error information
Structure-building activities	**Sequence**	Executes the activities defined in Sequence, one at a time in sequence
	Flow	Executes the multiple activities defined in Flow simultaneously and in parallel
	If	Defines conditional operations and executes activities in accordance with the conditions
	While	While the condition remains true, repeatedly executes the activity defined in While
Other elements	**Variables**	Defines messages and variables
	PartnerLinks	Defines services linked by Invoke/Receive/Reply

Type	Element name	Overview
	FaultHandlers	Receives error information
	CorrelationSets	Associates the messages received using Receive with business process instances

BPEL definition property settings

Set BPEL definition properties as shown below.

1. Display the property view.
   Click the blank part under the BPEL editor [Design] tab to display the BPEL definition property view.
2. Under [Description], [Details], [Join Behavior], and [Import] in the property view, set the settings shown in the table below.

BPEL definition property settings

Setting location	Setting	Value
Description	Name	Set the name of the BPEL process file. In the initial set, the BPEL process file name is the one that was set during **Creating a BPEL Process File**.
	Target namespace	Set the BPEL process Namespace. In the initial set, the Namespace is the one that was set during **Creating a BPEL Process File**.
Details	Expression language	Set the condition expression format. Ensure that [XPath 1.0 in BPEL 2.0] is selected. Do not select any other language.
	Query language	Set the XML reference method. Ensure that [XPath 1.0 in BPEL 2.0] is selected. Do not select any other language.
	Exit Standard Fault	Set the operation performed when a BPEL standard Fault occurs. Select one of the options shown below. The initial settings is No. • Yes When a BPEL standard Fault occurs, exit is performed immediately. • No When a BPEL standard Fault occurs, exit is not performed (the FaultHandler performs error processing).
Join Behavior	-	Set the initial value for [Suppress Join Failure] under the [Join Behavior] property of each activity. Select one of the options

Setting location	Setting	Value
		shown below. • Yes Do not post bpel:joinFailure (Fault). • No Post bpel:joinFailure (Fault).
Import	-	Leave initial settings unchanged.

Invoke

Add, delete, or edit Invoke as described below.

- Add

1. Add Invoke.
   From [Actions] in the [Palette] under the BPEL editor [Design] tab, drag and drop [Invoke] to the location where Invoke is to be added.
2. Set properties.
   Click the added Invoke under the BPEL editor [Design] tab, and set the name of the Invoke at [Name] under [Description] in the property view.
   Then, set the following settings under property view [Details].

Invoke settings

Setting	Value
Partner Link	To select a Partner Link, click the scroll button to the right of the input field to display a list of Partner Links. Double-click the Partner Link of the service invoked by Invoke. The Partner Link must already be created.
Operation	To select an Operation, click the scroll button to the right of the input field to display a list of Operations. Double-click the Operation for the service invoked by Invoke.
Use WSDL Message Parts Mapping	Leave initial settings unchanged (not selected).
Input Variable	To select a Variable, click the scroll button to the right of the input field to display a list of Variables. Double-click the Variable that stores messages received by the service invoked by Invoke. The Variable must already be created.
Output Variable	To select a Variable, click the scroll button to the right of the input field to display a list of Variables. Double-click the Variable that stores

Setting	Value
	messages sent from the service invoked by Invoke. The Variable must already be created.

- Delete
  Under the BPEL editor [Design] tab, click the Invoke that is to be deleted, and press the [Delete] key on the keyboard.
- Edit
  To move an Invoke, under the BPEL editor [Design] tab, click the Invoke that you want to move and drag and drop it to the move destination. To change the properties, under the BPEL editor [Design] tab, click the Invoke that you want to change and, in the property view, edit the settings as required.

Note:

- Ensure that the Invoke name set for [Name] under [Description] in the property view does not duplicate a name of another element in the same BPEL definition.
- If an Invoke is to be added, it is essential to first create both the Variable that stores the messages transferred to the service to be invoked and the Variable that stores the messages transferred from the service to be invoked. If these are not created in advance, the [Input Variable] and [Output Variable] input fields may not display under [Details] in the property view. If this happens, temporarily delete the Invoke and create each Variable, and then add the Invoke again.
- In the following case, deploy the invocation source BPEL definitions and the invocation destination BPEL definitions to different business process execution environments:
  - If Invoke is used to invoke from the BPEL definitions a service created by the BPEL definitions

Refer to **Deploying to the Business Process Execution Environment** for information on deployment of BPEL definitions to a business process execution environment.

Receive

Add, delete, or edit Receive as described below.

- Add

1. Add Receive.
   From [Actions] in the [Palette] under the BPEL editor [Design] tab, drag and drop [Receive] to the location where Receive is to be added.
2. Set properties. Click the added Receive under the BPEL editor [Design] tab, and set the name of the Receive at [Name] under [Description] in the property view.
   Enter the settings shown below under property view [Details].

Receive settings

Setting	Value
Partner Link	To select a Partner Link, click the scroll button to the right of the input field to display a list of Partner Links. Double-click the Partner Link to be used for Receive. The Partner Link must already be created.
Operation	To select an Operation, click the scroll button to the right of the input field to display a list of Operations. Double-click the Operation to be used for Receive.
Use WSDL Message Parts Mapping	Do not select.
Variable	To select a Variable, click the scroll button to the right of the input field to display a list of Variables. Double-click the Variable that stores messages received by Receive. The Variable must already be created.
Create a new Process instance if one does not already exist	Select if the Receive is the first Receive in the BPEL definitions. Do not select for other Receives.

- Delete
  Under the BPEL editor [Design] tab, click the Receive that is to be deleted, and press the [Delete] key on the keyboard.
- Edit
  To move a Receive, under the BPEL editor [Design] tab, click the Receive that you want to move and drag and drop it to the move destination. To change the properties, under the BPEL editor [Design] tab, click the Receive that you want to change and, in the property view, edit the settings as required.

Note:
- Receive and Reply must be used in pairs.
- Ensure that the Receive name set for [Name] under [Description] in the property view does not duplicate a name of another element in the same BPEL definition.

Reply

Add, delete, or edit Reply as described below.

- Add

1. Add Reply.
   From [Actions] in the [Palette] under the BPEL editor [Design] tab, drag and drop [Reply] to the required location.
2. Set properties.
   Click the added Reply under the BPEL editor [Design] tab, and set its name at [Name] under [Description] in the property view.
   Enter the settings shown below under property view [Details].

Reply settings

Setting	Value
Partner Link	To select a Partner Link, click the scroll button to the right of the input field to display a list of Partner Links. Click the Partner Link to be used for Reply. The Partner Link must already be created.
Operation	To select an Operation, click the scroll button to the right of the input field to display a list of Operations. Double-click the Operation to be used for Reply.
Fault Name	If Faults are to be posted, click the scroll button to the right of the input field to display a list. Double-click the Fault Name to select the Fault to be posted. The Fault must already be created as described in **Editing the WSDL Definitions**.
Use WSDL Message Parts Mapping	Do not select.
Variable	If Faults are not posted, set the Variable that stores the messages posted by Reply. To select a Variable, click the scroll button to the right of the input field to display a list of Variables. Double-click the Variable that stores messages posted by Reply. The Variable must already be created. If Faults are posted (if Fault Name is set), do not set anything at Variable. If Variable has been set, delete the setting by selecting [Clear Output Variable] from the drop-down list at the right of the input field.

- Delete
  Under the BPEL editor [Design] tab, click the Reply that is to be deleted, and press the [Delete] key on the keyboard.
- Edit
  To move a Reply, under the BPEL editor [Design] tab, click the Reply that you want to move and drag and drop it to the move destination. Or, to change the properties, under the BPEL editor [Design] tab, click the Reply that you want to change and, in the property view, edit the settings as required.

Note:
- Reply and Receive must be used in pairs.
- Reply is executed as the last process in a business process. Create BPEL definitions so that no activities are executed after Reply.

- If Reply sends a message, do not set Fault Name under [Detail] under the property view [Description]. A message cannot be posted if a Fault Name is posted.
- Ensure that the Reply name set for [Name] under [Description] in the property view does not duplicate a name of another element in the same BPEL definition.

Assign

Add, delete, or edit Assign as described below.

- Add

1. Add Assign.
   From [Actions] in the [Palette] under the BPEL editor [Design] tab, drag and drop [Assign] to the required location.
2. Set properties.
   Click the added Assign under the BPEL editor [Design] tab, and set the [Name] under [Description] in the property view.
   Enter the settings shown below under property view [Details].

Assign settings

Setting	Value
Validate	Leave initial settings unchanged (not selected).
[New] button	Click this button to create a new copy definition.
[Delete] button	To delete an already defined copy definition, select the copy definition and click the [Delete] button.
[Move Up] button	To move a copy definition to an earlier position in the execution sequence, select the copy definition and move it to the position in which it will be executed.
[Move Down] button	To move a copy definition to a later position in the execution sequence, select the copy definition and move it to the position in which it will be executed.
From	Click the scroll button to the right of the input field to display a list of copy source kinds, and then double-click a type of copy source to select it. Select from the following three options. Do not select any other copy source kind. • Variable • Expression • Fixed Value Refer to **Method for setting each type** below. Refer to **Possible variable type combinations** for the possible

Setting	Value
	variable type combinations for From and To.
To	Click the scroll button to the right of the input field to display a list of copy destination types, and then double-click to select it. Select from the following two options. Do not select any other type of copy destination. • Variable • Expression Refer to **Method for setting each type** below. Refer to **Possible variable type combinations** for the possible variable type combinations for From and To.
Ignore Missing Source Data	Select this checkbox if you want to ignore any copy processing errors. If selected, `bpel:selectionFailure` (Fault) is not posted even if a copy processing error occurs.
Keep Source Element Name	Select this checkbox if you want to copy not just the values but also the element names to the copy destination.

3. Method for setting each type
   The method for setting for each type for From and To in [Details] under the property view are described below.

Setting the From/To for Assign

Type	Settings
Variable	Click the scroll button to the right of the From or To input field to display a list of Variables, and then double-click a Variable to select it. A Variable list is displayed immediately below. Select the Variable to be used for the copy source or copy destination. If the Variable selected for the copy destination has not been initialized within the Assign currently being set, a confirmation message asking whether or not to automatically generate initialization is displayed. Click [Yes] or [No] as required. (If initialization is already completed for other Assign properties, select [No].)
Expression	Click the scroll button to the right of the From or To input field to display a list of Expressions, and then double-click an Expression to select it. Click the scroll button to the right of the Expression language input field to display a list of Expression languages, and then double-click Same as Process(XPath 1.0 in BPEL 2.0) to select it. Do not select any other language. Define the copy source and copy destination immediately below in

Type	Settings
	Xpath 1.0 format.
Fixed Value * Can be specified only at the copy source	Initializes the variable (structure initialization). Click the scroll button to the right of the From input field to display a list of Fixed Values, and then double-click a Fixed Value to select it. Define initialization immediately below in XML format. Example: <tns:ColTest1Request xmlns:tns="http://sample.bpel.org/bpel> <tns:input_bp></tns:input_bp> <tns:CID_BPELIN></tns:CID_BPELIN> </tns:ColTest1Request>

4. Possible variable type combinations
   The following variable types can be combined in From and To. Use either of the options shown below.
   - Same variable type used in both From and To
   - If different variable types are selected for From and To, only the combinations shown below can be used. Do not use other combinations.

Allowed variable type combinations for Assign From and To

From	To
integer	Decimal
Long	Decimal
	Integer
Int	Decimal
	Integer
	Long
Short	Decimal
	Integer
	Long
	Int
Byte	Decimal

From	To
	integer
	long
	int
	short
nonNegativeInteger	decimal
	integer
positiveInteger	decimal
	integer
	nonNegativeInteger
unsignedLong	decimal
	integer
	nonNegativeInteger
unsignedInt	decimal
	integer
	nonNegativeInteger
	unsignedLong
unsignedShort	decimal
	integer
	nonNegativeInteger
	unsignedLong
	unsignedInt
unsignedByte	decimal
	integer
	nonNegativeInteger
	unsignedLong
	unsignedInt

From	To
	unsignedShort
nonPositiveInteger	decimal
	integer
	long
negativeInteger	integer
	long
	nonPositiveInteger
normalizedString	string
Token	string
	normalizedString
language	string
	normalizedString
	token
Name	string
	normalizedString
	token
NCName	string
	normalizedString
	token
	Name
ID	string
	normalizedString
	token
	Name
	NCName
NMTOKEN	string

From	To
	normalizedString
	token

- Delete
  Under the BPEL editor [Design] tab, click the Assign that is to be deleted and press the [Delete] key on the keyboard.
- Edit
  To move an Assign, under the BPEL editor [Design] tab, click the Assign that you want to move and drag and drop it to the move destination. To change the properties, under the BPEL editor [Design] tab, click the Assign that you want to change and, in the property view, edit the settings as required. For an Assign within a FaultHandler, first click the Catch or Catch All deployed by the Assign, and then click the Assign and change the properties.

Note:

- The Validate function is not supported. If selected, it is ignored.
- The table below shows types that can be specified for the copy source and the copy destination. Do not specify any other types.

Allowed Types for Assign From/To

Setting Location	Allowed Type
From (copy source)	• Variable • Expression • Fixed Value
To (copy destination)	• Variable • Expression

- If the Variable DataType set for To is Element Declarations or Messages, when values are copied to an integer-type Element within Variable, do not specify Expression for From. To copy, temporarily copy the Expression result to a Variable where the DataType is Primitives or Simple Types, and then copy it to the actual copy destination.
- If the specification is in Xpath1.0 format, do not use the following functions:
  - lang()
  - doXslTransform()
- Even if an invalid XPath1.0 function is specified for To (copy destination), bpel:selectionFailure is not posted.

- Ensure that the Assign name set for [Name] under [Description] in the property view does not duplicate a name of another element in the same BPEL definition.

Throw

Add, delete, or edit Throw as described below.

- Add
  1. Add Throw. From [Faults] in the [Palette] under the BPEL editor [Design] tab, drag and drop [Throw] to the location where Throw is to be added.
  2. Set properties. Click the added Throw under the BPEL editor [Design] tab, and set the name of the Throw at [Name] under [Description] in the property view. Enter the settings shown below under property view [Details].

Throw settings

Setting	Value
Fault Type	Select one of the following: • Built-in If a BPEL standard Fault is to be thrown • User-defined If a user-defined Fault is to be thrown
Namespace	Namespace can be specified only if User-defined is selected. Set the Namespace that belongs to the Fault set at Fault Name. Ensure that the Namespace is specified.
Fault Name	Set the Fault Name that is to be Thrown. If Built-in is selected, click the scroll button to the right of the input field to display a list of Faults, and then double-click the Fault s to be Thrown. If User-defined is selected, set the Fault that is to be Thrown.
Fault Variable	To post information together with a Fault Name, specify the Variable that stores the information to be posted. Click the [Browse] button, and then select a Variable from the displayed list.

- Delete
  Under the BPEL editor [Design] tab, click the Throw to be deleted, and press the [Delete] key on the keyboard.
- Edit
  To move a Throw, under the BPEL editor [Design] tab, click the Throw that you want to move and drag

and drop it to the move destination. To change the properties, under the BPEL editor [Design] tab, click the Throw that you want to change and, in the property view, edit the settings as required.

Note: Ensure that the Throw name set for [Name] under [Description] in the property view does not duplicate a name of another element in the same BPEL definition.

Sequence

Add, delete, or edit Sequence as described below.

- Add
  1. Add Sequence.
     From [Control2] in the [Palette] under the BPEL editor [Design] tab, drag and drop [Sequence] to the required location.
  2. Set properties.
     Click the added Sequence under the BPEL editor [Design] tab, and set the name of the Sequence at [Name] under [Description] in the property view.
  3. Deploy activities within the Sequence.
     In the Sequence frame under the BPEL editor [Design] tab, add the activities to be executed sequentially.
- Delete
  Under the BPEL editor [Design] tab, click the Sequence that is to be deleted, and press the [Delete] key on the keyboard.
- Edit
  To move a Sequence, under the BPEL editor [Design] tab, click the Sequence that you want to move and drag and drop it to the move destination. To change the properties, under the BPEL editor [Design] tab, click the Sequence that you want to change and, in the property view, edit the settings as required.

Note: Ensure that the Sequence name set for [Name] under [Description] in the property view does not duplicate a name of another element in the same BPEL definition.

Flow

Add, delete, or edit Flow as described below.

- Add
  1. Add Flow. From [Control2] in the [Palette] under the BPEL editor [Design] tab, drag and drop [Flow] to the required location.
  2. Set properties. Click the added Flow under the BPEL editor [Design] tab, and set the [Name] under [Description] in the property view.
  3. Deploy activities within the Flow. In the Flow frame under the BPEL editor [Design] tab, add the activities to be executed in parallel.

4. Add Link. If the activities within Flow include activities that are to be executed sequentially, Link is used to link the activity that is to be executed first with the next activity. Link can also be used to link multiple settings to one activity. Follow the procedure below to create a Link.

    a. Under the BPEL editor [Design] tab, right-click the activity that is to be executed first within the Flow, and, in the popup menu, click [Add Link].

    b. When the activity to be executed next is clicked, an arrow sign (Link) is added from the Link origin activity to the Link destination activity.

    c. Under the BPEL editor [Design] tab, click the added Link and, under [Details] in the property view, enter the settings shown below.
    Do not change [Name] under [Description] in the property view. Use the initial value Link name as is.

Link settings

Setting	Value
Expression language	Select one of the following. Do not select any other language. • NoExpression If transition to the next activity is unconditional • Same as Process (XPath 1.0 in BPEL 2.0) If this option is selected, define the XPath1.0 condition expression immediately below. The result of the condition expression (True or False) is stored in the Link variable (the variable name is the same as the Link name) and can be used in judging the activity execution condition at the Link destination. Refer to **Setting activity execution conditions for the Link destination** below for information concerning setting activity execution conditions for the Link destination.
[Create a New Condition] button	Clicking this button selects [Same as Process (XPath 1.0 in BPEL 2.0)] for [Expression language].

5. Setting activity execution conditions for the Link destination
    Conditions for executing an activity at the Link destination can be set.
    To set a condition, under the BPEL editor [Design] tab, click the activity for which an execution condition is to be set, and then enter the settings below at [Join Behavior] in the property view.

Activity execution condition settings

Setting	Value
Expression language	Select one of the following. Do not select any other language. • NoExpression If execution of the activity is unconditional • Same as Process (XPath 1.0 in BPEL 2.0)

Setting	Value
	Specify the activity execution conditions. Define the conditions immediately below using XPath1.0 condition expressions. A Link variable (the variable name is the same as the Link name) of a Link from the previous activity can be used in condition expressions. If the condition expression result is True, the activity is executed. If it is False, bpel:joinFailure (Fault) is posted. Note that if Yes is set for the Suppress Join Failure item below, bpel:joinFailure (Fault) is not posted. Refer to **Add Link** above for information concerning Link variable settings.
[Create a New Condition] button	Clicking this button selects [Same as Process (XPath 1.0 in BPEL 2.0)] for [Expression language].
Suppress Join Failure	Select one of the following. Do not select any other option. • Yes bpel:joinFailure (Fault) is not posted even if the execution condition is False. • No bpel:joinFailure (Fault) is posted if the execution condition is False. • Use Same Value as Parent Follows the BPEL definition property settings.

- Delete
  Under the BPEL editor [Design] tab, click the Flow that is to be deleted, and press the [Delete] key on the keyboard.
- Edit
  To move a Flow, under the BPEL editor [Design] tab, click the Flow that you want to move and drag and drop it to the move destination. To change the properties, under the BPEL editor [Design] tab, click the Flow that you want to change and, in the property view, edit the settings as required.

Note:

- Do not create definitions in which Links make an endless loop. These endless loops cause timeout occurs for execution of business processes.
- If the displays of Sequence, If, and While, are concatenated under the BPEL editor [Design] tab (display in which activities defined within other activities are omitted), the Link arrows do not display correctly. However, returning from the concatenated display to the original display makes the arrows display normally.
- Ensure that the Flow name set for [Name] under [Description] in the property view does not duplicate a name of another element in the same BPEL definition.
- Do not change [Name] under [Description] in the Link property view. Use the Link

name of the initial values as is.

If

Add, delete, or edit If as described below.

- Add

1. Add If.
   From [Control2] in the [Palette] under the BPEL editor [Design] tab, drag and drop [If] to the required location.
2. Set properties.
   Click the added If under the BPEL editor [Design] tab, and set the name of the If at [Name] under [Description] in the property view.
   Enter the following settings under property view [Details].

If settings

Setting	Value
Expression language	Select the language below. Do not select any other language. • Same as Process (XPath 1.0 in BPEL 2.0) Specify the condition for transition to the next activity. Define the condition immediately below using an XPath1.0 condition expression. If the result of the condition expression is True, transition to the next activity occurs. If False, transition does not occur.
[Create a New Condition] button	Clicking this button selects [Same as Process (XPath 1.0 in BPEL 2.0)] for [Expression language].

3. Deploy the activity to be executed by If.
   After If under the BPEL editor [Design] tab, add the activity that is to be executed by If. It is essential to deploy some sort of activity.
4. Add Else / Else If.
   To execute an activity when the If condition is not matched, use Else. To execute an activity after condition judgement has already occurred, use Else If. Follow the procedure shown below to add Else / Else If.
   a. Under the BPEL editor [Design] tab, click the added If, and then click [Add Else] or [Add Else If] in the popup menu.
   b. Under the BPEL editor [Design] tab, click the added Else or Else If, and then enter the settings shown in the table below at [Details] in the property view.

Else/Else If settings

Setting	Value
Expression language	Select the language below. Do not select any other language. • Same as Process (XPath 1.0 in BPEL 2.0) Specify the condition for transition to the next activity. Define the condition immediately below using an XPath1.0 condition expression. If the result of the condition expression is True, transition to the next activity occurs. If False, transition does not occur.
[Create a New Condition] button	Clicking this button selects [Same as Process (XPath 1.0 in BPEL 2.0)] for [Expression language].

a. After the Else or Else / If under the BPEL editor [Design] tab, add the activity that is to be executed by Else or Else / If. It is essential to deploy some sort of activity.

- Delete
  Under the BPEL editor [Design] tab, click the If that is to be deleted, and press the [Delete] key on the keyboard. Else and Else If can be deleted in a similar manner.
- Edit
  To move an If, under the BPEL editor [Design] tab, click the If and drag and drop it to the move destination. To change the properties, under the BPEL editor [Design] tab, click the If, Else, or Else If that you want to change and, in the property view, edit the settings as required.

Note: Ensure that the If name set for [Name] under [Description] in the property view does not duplicate a name of another element in the same BPEL definition.

While

Add, delete, or edit While as described below.

- Add

1. Add While.
   From [Control2] in the [Palette] under the BPEL editor [Design] tab, drag and drop [While] to the required location.
2. Set properties.
   Click the added While under the BPEL editor [Design] tab, and set the name of the While at [Name] under [Description] in the property view.
   Enter the following settings under property view [Details].

While settings

Setting	Value
Expression language	Select the language below. Do not select any other language.

Setting	Value
	• Same as Process (XPath 1.0 in BPEL 2.0) Specify the condition for transition to the next activity. Define the condition immediately below using an XPath1.0 condition expression. If the result of the condition expression is True, transition to the next activity occurs. If False, transition does not occur.
[Create a New Condition] button	Clicking this button selects [Same as Process (XPath 1.0 in BPEL 2.0)] for [Expression language].

3. Deploy the activity to be executed by While.
   In the While frame under the BPEL editor [Design] tab; add the activity that is to be executed by While. It is essential to deploy some sort of activity.

- Delete
  Under the BPEL editor [Design] tab, click the While that is to be deleted, and press the [Delete] key on the keyboard.
- Edit
  To move a While, under the BPEL editor [Design] tab, click the While that you want to move and drag and drop it to the move destination. To change the properties, under the BPEL editor [Design] tab, click the While that you want to change and, in the property view, edit the settings as required.

Note: Activities defined within While are executed repeatedly while the condition remains true. Since condition judgment is performed in advance, if the condition judgment result is false, While ends without the activity within While ever being executed.

Ensure that the While name set for [Name] under [Description] in the property view does not duplicate a name of another element in the same BPEL definition.

Variables

Add, delete, or edit Variables as described below.

- Add

1. Add Variable. Click [+] to the side of [Variables] under the BPEL editor [Design] tab.
2. Set properties.
   Under the BPEL editor [Design] tab, click the added Variable and, at [Name] under [Description] in the property view, set the name of the Variable.
   Under [Details] and [Initialization] in the property view, enter the settings shown below.

Variables settings

Setting location	Setting	Value
Details	Data Type	Click the [Browse] button and, in the [Choose type of Variable] window, specify the Data Type. Refer to **Set [Choose type of Variable]** below for information concerning the [Choose type of Variable] window.
	Structure	Displays the structure of the set Data Type
Initialization	From	Leave initial settings unchanged (None selected).

3. Set [Choose type of Variable].

   Enter the settings shown below.

[Choose type of Variable] settings

Setting	Value
Type Name	Enter a keyword to narrow down the Data Types displayed in Matches.
Show XSD Types	Specify the range of Data Types to be displayed in Matches. Select one of the following options: • From Imports Definitions imported by BPEL processes • From Project Definitions within project • From Workspace Definitions within WorkSpace
Filter	Specify the kind of Data Type to be displayed in Matches. Select the kind that you want to display. Ensure that only one of the required kinds is selected.
Matches	Select the Data Type of the Variable to be added. Refer to the **Notes** below for the Data Types that can be used by BPEL functions.
Type Structure	Displays the structure of the Data Type selected at Matches
[Add Schema] button	Click this button if you want to add a Data Type.
[OK] button	Confirms the Data Type selection at Matches
[Cancel] button	Cancels the Data Type selection

- Delete
  In the BPEL editor [Design] tab under [Variables], click the Variable that you want to delete, and then

click the [x] at the side of [Variables].
If a Variable is to be deleted, first edit the definitions (From / To definitions of Assign, Input Variable / Output Variable of Invoke, and so on) that use that Variable so that they no longer use the Variable that is to be deleted.

- Edit
  To change the properties, under [Variables] in the BPEL editor [Design] tab, click the Variable that you want to change and, in the property view, edit the settings as required.
  Do not change the Variable name. If you want to change the name, temporarily delete the relevant Variable and then create a new Variable with the new name.

Note:

- Initialization definitions under [Initialization] in the Variable properties are not supported. Use Assign to initialize variables.
- The character strings that can be used in Variable names conform to NCName. However, do not use "." (periods).
- The Data Types that can be used by BPEL functions conform to Interstage Application Server. Do not use other Data Types. .
- Do not use Complex Type, Qname, and Attribute.
- Use only the Element Declarations that are defined in WSDL.
- Ensure that the Variable name set for [Name] under [Description] in the property view does not duplicate a name of another element in the same BPEL definition.

PartnerLinks

Add, delete, or edit PartnerLinks as described below.

- Add
  1. Add PartnerLink.
     Click the [+] next to [PartnerLinks] under the BPEL editor [Design] tab.
  2. Set properties.
     Click the added PartnerLink under the BPEL editor [Design] tab, and set the name of the PartnerLink at [Name] under [Description] in the property view.
     Enter the settings as shown below under property view [Details].

PartnerLinks settings

Setting	Value
Partner Link Type	Click the [Browse] button and, in the [Choose Partner Link type] window, specify the Partner Link Type. Refer to **Set [Choose Partner Link type]** below for information concerning the [Choose Partner Link type] window.
My Role	Displays the Role for BPEL definitions (used by Receive / Reply).

Setting	Value
Partner Role	Displays the Role for the invoked service (used by Invoke).
My Operations	Displays The Partner Link Operation for BPEL definitions (used by Receive / Reply).
Partner Operations	Displays The Partner Link Operation for the invoked service (used by Invoke).

3. Set [Choose Partner Link type].

   Enter the settings shown below.

[Choose Partner Link type] settings

Setting	Value
Name	Enter a keyword to narrow down the Partner Link Types and Port Types displayed in Matches.
Show Partner Link Types	Specify the range of Partner Link Types or Port Types to be displayed in Matches. Select one of the following options: • From Imports Definitions imported by BPEL processes • From Project Definitions within project • From Workspace Definitions within WorkSpace
Filter	Specify the kind of Partner Link Type or Port Type to be displayed in Matches. Select the kind that you want to display. Ensure that only one of the required kinds is selected.
Matches	Select the Partner Link Type or the Port Type of the PartnerLink to be added. If Port Type is selected and then the [OK] button is clicked, the [Create Partner Link Type] wizard is started. Refer to **[Create Partner Link Type] wizard** below for information concerning the [Create Partner Link Type] wizard. Refer to the **Notes** below for the Data Types that can be used by BPEL functions.
Partner Link Type Structure	Displays the structure of the Partner Link Type or the Port Type selected at Matches
[Add WSDL] button	Click this button if you want to add a Partner Link Type.
[OK] button	Confirms the Partner Link Type or Port Type selection at Matches
[Cancel] button	Cancels the Partner Link Type selection

4. [Create Partner Link Type] wizard
   Follow the procedure below to create a Partner Link.
   a. At [Partner Link Type Name], enter the name of the PartnerLink to be created, and then click the [Next] button.
   b. At [Role Name], enter the name of the Role, and at [Port Type], select the Port Type that is to create the Role.
   c. If there are other Port Types that create the Role, Click [Next] and perform Step 2.
   d. If there are no other Port Types that create the Role, Click [Finish].

- Delete
  In the BPEL editor [Design] tab under [PartnerLinks], click the PartnerLink that you want to delete, and then click the [x] at the side of [PartnerLinks].
  If a PartnerLink is to be deleted, first edit the definitions (PartnerLink of Invoke / Receive / Invoke, and so on) that use that PartnerLink so that they no longer use the PartnerLink that is to be deleted.
- Edit
  To change the properties, under [PartnerLinks] in the BPEL editor [Design] tab, click the PartnerLink that you want to change and, in the property view, edit the settings as required.
  Do not change the PartnerLink name. If you want to change the name, temporarily delete the relevant PartnerLink and then create a new PartnerLink with the new name.

Note:	Ensure that the PartnerLink name set for [Name] under [Description] in the property view does not duplicate a name of another element in the same BPEL definition.

FaultHandlers

Add, delete, or edit FaultHandler as described below.

- Add

1. Add FaultHandler.
   To add FaultHandler to the BPEL definitions as a whole, right click the BPEL process start point (the green circle at the start) under the BPEL editor [Design] tab, and then click [Add Fault Handler] in the popup menu.
   To add FaultHandler to an Invoke, right click the Invoke to which the FaultHandler under the BPEL editor [Design] tab is to be added, and then click [Add Fault Handler] in the popup menu.
2. Delete unnecessary activities.
   Under the BPEL editor [Design] tab, delete the [Compensate] and [Rethrow] in the FaultHandler frame. Select these activities and then press the [Delete] key on the keyboard.
3. Set properties.
   Under the BPEL editor [Design] tab, click Catch in the added FaultHandler, and then enter the following settings under [Details] in the property view.

FaultHandler settings

Setting	Value
Fault Type	Select one of the following: • Built-in To Catch a BPEL standard Fault • User-defined To Catch a user-defined Fault
Namespace	Namespace can be specified only if User-defined is selected. Click the scroll button to the right of the input field to display the NameSpace list. Double-click the Namespace that belongs to the Fault set at Fault Name to select the Namespace.
Fault Name	Set the Fault Name that is to be caught by Catch. Click the scroll button to the right of the input field to display a list of Faults, and then double-click the Fault that is to be caught by Catch to select it. The character string of Catch displayed to set Fault Name in the Design tab in the BPEL editor changes.
Variable Name	Set the name of the variable that stores the information posted together with Fault Name. The Variable Name set here can be used only within the relevant Catch.
Data Type	Set the Data Type of the variable set at Variable Name. Click the [Browse] button and, in the [Choose type of Variable] window, specify the Data Type. Here specify MessageType. Refer to **Set [Choose type of Variable]** below for information concerning the [Choose type of Variable] window.
Structure	Displays the structure of the Data Type set at Data Type

4. Set [Choose type of Variable].
   Enter the settings shown below.

[Choose type of Variable] settings

Setting	Value
Type Name	Enter a keyword to narrow down the Data Types displayed in Matches.
Show XSD Types	Specify the range of Data Types to be displayed in Matches. Select one of the following options: • From Imports Definitions imported by BPEL processes • From Project

Setting	Value
	Definitions within project • From Workspace Definitions within WorkSpace
Filter	Specify the kind of Data Type to be displayed in Matches. Select the kind that you want to display. Ensure that only one of the required kinds is selected.
Matches	Select the Data Type of the Variable to be added. Refer to the **Notes** below for the Data Types that can be used by BPEL functions.
Type Structure	Displays the structure of the Data Type selected at Matches
[Add Schema] button	Click this button if you want to add a Data Type.
[OK] button	Confirms the Data Type selection at Matches
[Cancel] button	Cancels the Data Type selection

5. Deploy activities within Catch.
   Under the BPEL editor [Design] tab, add to the Catch frame the activities to be executed after Catch.
6. Add Catch.
   To add Catch processing for a Fault Name other than the Fault Name received by the Catch set as described in **Set Properties**, under the BPEL editor [Design] tab, click the FaultHandler where the Catch is to be added, and then click [Add Catch] in the popup menu. To set the properties and activities for the added Catch, use the same procedures as in **Set Properties** to **Deploy activities within Catch**.
7. Add Catch All.
   To Catch all Fault Names other than the Fault Name received by the Catch set as described in **Set Properties**, under the BPEL editor [Design] tab, click the FaultHandler where the Catch is to be added, and then click [Add Catch All] in the popup menu. Properties do not need to be set for Catch All. To deploy activities, use the same procedures as in **Deploy activities within Catch**.

- Delete
  Under the BPEL editor [Design] tab, click the FaultHandler, Catch, or CatchAll that is to be deleted, and press the keyboard [Delete] key. Note that, if there is only one Catch in the FaultHandler, do not delete the Catch.
- Edit
  To change the properties, under the BPEL editor [Design] tab, click the FaultHandler or Catch that you want to change and, in the property view, edit the settings as required. If the FaultHandler is not displayed under the BPEL editor [Design] tab, click the [x] at the upper-right of the BPEL process start point (the green circle at the start) to display the FaultHandler.

Note:
- The Data Types that can be used in variables defined at Variable Name conform to Interstage Application Server. Do not use other Data Types.

- Do not use Complex Type, Qname, and Attribute.
- Use only the Element Declarations that are defined in WSDL.

CorrelationSets

Add, delete, or edit CorrelationSets as described below.

- Add

1. Add CorrelationSet
   Click the [+] next to [CorrelationSets] under the BPEL editor [Design] tab.
2. Set properties.
   Click the added CorrelationSets under the BPEL editor [Design] tab, and set the name of the CorrelationSets at [Name] under [Description] in the property view.
   Enter the settings shown below under property view [Details].

CorrelationSets settings

Setting	Value
Properties	Adds, edits and deletes Properties of CorrelationSets. • [Add] button Adds a Property. This button displays the [Create Message Property] dialog box. Refer to **Set [Select a Property]** below for details. • [Edit] button The [Edit] button cannot be used. To edit a Property, use the [Remove] button to temporarily delete the relevant Property, and then use the [Add] button to add a Property with the new content. • [Remove] button Deletes the selected Property.
Property	Displays a list of the Properties that are already added

3. Set [Select a Property].
   Enter the settings shown below.

[Select a Property] settings

Setting	Value
Property Name	Displays the name of the selected Property. To create a new Property, click the [New] button. This displays the [Create Message Property] dialog box. Refer to **Set [Create Message Property]/[Edit Message Property]** for details.

Setting	Value
Matches	Select a Property that is already created.
Property Type	Displays the Property Type of the Property selected at Matches.

4. Set [Create Message Property]/[Edit Message Property].
   Enter the settings shown below.

[Create Message Property]/[Edit Message Property] settings

Setting	Value
Name	Set the name of the Property.
Types	Set the Property Type. Click the [Browse] button to start the [Choose type of variable] dialog box, and then the Type. Refer to **Set [Choose type of variable]** for details.
Aliases	Define the position within a message to store the identifier used to associate business process instances with messages. Define all messages (messages used by Invoke and messages used by Receive / Reply) operated by the same CorrelationSets instance. • [New] button Add Alias. This button starts the [Create Property Alias] dialog box. Refer to **Set [Create Property Alias]/[Edit Property Alias]** for details. • [Edit] button Edit the selected Alias. This button starts the [Edit Property Alias] dialog box. Refer to **Set [Create Property Alias]/[Edit Property Alias]** for details. • [Remove] button Deletes the selected Alias

5. Set [Choose type of Variable].
   Enter the settings shown below.

[Choose type of Variable] settings

Setting	Value
Type Name	Enter a keyword to narrow down the Types displayed in Matches.
Show XSD Types	Specify the range of Types to be displayed in Matches. Ensure that From Imports is selected.

Setting	Value
Filter	Specify the kind of Type to be displayed in Matches. Select the kind that you want to display. Ensure that only one of the required kinds is selected.
Matches	Select the Type. Refer to the **Notes** below for the Types that can be used by BPEL functions.
Type Structure	Displays the structure of the Type selected at Matches
[Add Schema] button	Click this button if you want to add a Type.
[OK] button	Confirms the Type selection at Matches
[Cancel] button	Cancels the Type selection

6. Set [Create Property Alias]/[Edit Property Alias].
   Enter the settings shown below.

Create Property Alias]/[Edit Property Alias] settings

Setting	Variable
Data Types	Set the Alias Type. Set the Message Type of the messages that store the identifier used to associate business process instances with messages. Click the [Browse] button to start the [Choose type of variable] dialog box, and then select the Data Type. Refer to **Set [Choose type of variable]** above for details.
Structure	Displays the structure of the Data Type set at Data Type
Part	Select the part of the message that stores the identifier used to associate business process instances with messages.

7. Set Invoke/Receive/Reply.
   Enter settings to store in the instance the identifier used to associate business process instances with messages and to route messages to the relevant instance.
   Enter the settings in the Invoke/Receive/Reply properties. Click each of the activities and enter the settings shown below at [Correlation] in the property view.

Invoke/Receive/Reply settings

Setting	Value
Correlation Sets	Add or delete a Correlation Set. • [Add] button Adds a Correlation Set

Setting	Value
	After the Correlation Set is added, set [Direction], [Initiation], and [Correlation Set]. • [Remove] button Deletes the selected Correlation Set
Direction	Set the timing for storing within the instance the message identifier defined at CorrelationSet. [Send] Stores the identifier when the message is sent This option can be selected for only Invoke and Reply. [Receive] Stores the identifier when the message is received This option can be selected for only Invoke and Receive. [Both] Stores the identifier in both directions, when the message is sent and when it is received This option can be selected for only Invoke.
Initiation	Set the method for storing within the instance the message identifier defined at CorrelationSet. • [Yes] Stores the identifier • [Join] Stores the identifier only if an identifier is not already stored • [No] Does not store the identifier
Correlation Set	Sets the CorrelationSet to be used

- Delete
  In the BPEL editor [Design] tab under [CorrelationSets], click the CorrelationSet that you want to delete, and then click the [x] at the side of [CorrelationSets].
- Edit
  To change the properties, under [CorrelationSets] in the BPEL editor [Design] tab, click the CorrelationSet that you want to change and, in the property view, edit the settings as required.
  Do not change the CorrelationSet name. If you want to change the name, temporarily delete the relevant CorrelationSet and then create a new CorrelationSet with the new name.

Note:
- The Types that can be used at Property conform to Interstage Application Server.
  Do not use other Data Types.
  Do not use Complex Type.
  Use only the Element Declarations that are defined in WSDL.

- Ensure that the CorrelationSet name set for [Name] under [Description] in the property view does not duplicate a name of another element in the same BPEL definition.
- Under [Create Message Property] or [Edit Message Property], if the [Edit] button is clicked to select from Aliases a Property Alias that has messages with large-capacity elements, the [Edit Property Alias] dialog screen may not display correctly. It ,may not be possible to edit the Property Alias. If so, click the [Cancel] button to close the [Edit Property Alias] dialog, temporarily delete the relevant Property Alias, and then create a new Property Alias that has the changed content.
- Do not close the BPEL editor or Interstage Studio without setting the CorrelationSet properties. If you want to close the BPEL editor or Interstage Studio, set the CorrelationSet properties before doing so.

4.5.7 Creating a Web Application Environment Definition File (deployment descriptor)

Create the BPEL definition Web application environment definition file (deployment descriptor). Follow the procedure shown below to create a file based on the template deploy.xml.

1. Copy the template file.
   Copy the template file shown below to any directory in the development environment.

Web application environment definition file template

Template filename	Template file directory
deploy.xml	<IBPM media>\misc\bpel\sample\template

The template file contents are as follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<deploy xmlns="http://www.apache.org/ode/schemas/dd/2007/03"
    xmlns:pns="http://eclipse.org/bpel/sample"
    xmlns:wns="http://eclipse.org/bpel/sample"
       xmlns:wns2="http://esi.fujitsu.com">

    <process name="pns:SampleProcess">
        <active>true</active>

        <provide partnerLink="client">
            <service name="wns:SampleService" port="SamplePort"/>
        </provide>

        <invoke partnerLink="PartnerLink001">
            <service name="wns2:WebService001" port="WebPort001"/>
        </invoke>

    </process>
```

```
</deploy>
```

2. Set Namespace
   Define the following Namespaces under the deploy tag of the sample file:
   a. BPEL process Namespace (refer to **Creating a BPEL Process File**)
   b. Namespace defined in BPEL process WSDL definitions
   c. Namespace defined in WSDL definitions of the service invoked by Invoke

   Define each of the above in the following format:

```
xmlns:[any name that defines the Namespace]="[Namespace]"
```

3. Set BPEL Process Name.
   Define the BPEL Process Name under the process tag in the template file (refer to **Creating a BPEL Process File**).
   Define the name in the following format:

```
<process name="[name indicating the BPEL process Namespace]:[BPEL Process Name]">
```

4. Set the BPEL definition PartnerLink.
   Under the provide tag of the template file, define all the PartnerLinks that are used by Receive / Reply. Define the PartnerLinks in the following format:

```
<provide partnerLink="[PartnerLink name]">
<service name="[BPEL definition WSDL Namespace]:[service name that is bound by
PartnerLink]" port="[port name defined in the service]"/>
</provide>
```

5. Set the PartnerLink of the service invoked by Invoke.
   Under the invoke tag of the template file, define all the PartnerLinks that are used by Invoke. Define the PartnerLinks in the following format:

```
<invoke partnerLink="[PartnerLink name]">
<service name="[Namespace defined in the WSDL of the service invoked by Invoke]:[service
name bound by PartnerLink]" port="[port name defined in service]"/>
</invoke >
```

5 Appendix A Messages Starting with WSBPEL

The message labels for these messages start with WSBPEL. Follow the advice given under "Action" to resolve each problem.

If you see messages which have not been described in this section, please contact your local Fujitsu support organization.

A.1 WSBPEL-10000 numbers

These are the messages from WSBPEL-10000 to WSBPEL-19999.

A.1.1 WSBPEL-11201

captureSchema: XMLParseException(s) in %1

Message type

Error

Explanation

In the [Create a BPEL Process File] screen used to create the BPEL process file, either the [Namespace] or [BPEL Process Name] specification is incorrect.

Parameters

%1: Internal information

System processing

Processing stops.

Action

Correct the [Namespace] and [BPEL Process Name] specifications in the [Create a BPEL Process File] screen.

A.1.2 WSBPEL-17202

Database error upgrading jobs.

Message type

Error

Explanation

Activation of the business process execution environment failed.

System processing

System processing continues.

Action

Stop the IJServer to which the business process execution function is deployed. A user with System Administrator permissions should then delete the file below and restart the IJServer to which the business process execution function is deployed.

- [J2EE common directory]/ijserver/[IJServer name]/apps/ode.war/WEB-INF/jpadb/db.lck

A.1.3 WSBPEL-17203

Error loading immediate jobs from database

Message type

Error

Explanation

Business process execution failed.

System processing

Processing stops.

Action

The BPEL definitions contain an error. The While definition may be causing an endless loop. If necessary, correct the BPEL definitions to prevent endless loops.

A.1.4 WSBPEL-17208

Error while executing transaction

Message type

Error

Explanation

An error occurred during execution of the business process.

System processing

Processing stops.

Action

Refer to the error messages output before and after this message was caused and resolve the problem, and then execute the business process again.

A.1.5 WSBPEL-17209

Error while processing transaction, no retry.

Message type

Error

Explanation

Business process execution failed.

System processing

Processing stops.

Action

The BPEL definitions of both the Invoke invocation source and destination may be deployed in the same business process execution environment. Ensure that the BPEL definitions of the invocation source and destination are deployed to different business process execution environments.

Refer to **Deployment to a Business Process Execution Environment** under **BPEL Definition Development** under **BPEL Function Application Development** in the BPEL User's Guide for information on deployment of BPEL definitions to a business process execution environment.

A.1.6 WSBPEL-17211

Error while processing transaction, retrying in 1s

Message type

Error

Explanation

Business process execution is being retried.

System processing

Processing stops.

Action

If message **WSBPEL-20201** is output before this message, follow the action indicated for message **WSBPEL-20201**.

In other cases, refer to the error messages output before and after this message and resolve the problem. After operation of the business process execution function is stopped and restarted, execute the business process again.

Refer to **Flow of Operations** under **BPEL Function Operation** in the BPEL User's Guide for information on how to start and stop operation of the business process execution function.

A.1.7 WSBPEL-17305

Exception while cleanup DB

Message type

Warning

Explanation

An error occurred during business process execution.

System processing

System processing continues.

Action

If an error message is output before and after this message, take the action advised in those messages.

A.2 WSBPEL-20000 numbers

These are the messages from WSBPEL-20000 to WSBPEL-29999.

A.2.1 WSBPEL-20201

Method "run" in class "%1" threw an unexpected exception

Message type

Error

Explanation

Business process execution failed.

Parameters

%1: Detailed information

System processing

Processing stops.

Action

Take action indicated in the following table according to the character string included in the detailed information.

WSBPEL-20201 cause and action

Character string included in detailed information	Cause	Action
org.apache.ode.bpel.runtime.REPLY	Establishment of the association between business process instances and messages may have failed because multiple business process instances were	Delete the business process execution environment, and create a new one. Execute such that a unique value is specified for Property under

Character string included in detailed information	Cause	Action
	executed with the same value specified for Property under CorrelationSets.	CorrelationSets. Refer to Creating a Business **Process Execution Environment** and **Deleting a Business Process Execution Environment** under **BPEL Function Setup** in the BPEL User's Guide for information on how to create and delete a business process execution environment.
	[Variable] may not be set under {Details} in the Reply property view.	In the BPEL definition, ensure that [Variable] is set correctly under [Details] in the Reply property view.
	The BPEL definitions of both the Invoke invocation source and destination may be deployed in the same business process execution environment.	Ensure that the BPEL definitions of the invocation source and destination are deployed to different business process execution environments. Refer to **Deployment to a Business Process Execution Environment** under **BPEL Definition Development** under **BPEL Function Application Development** in the BPEL User's Guide for information on deployment of BPEL definitions to a business process execution environment.
org.apache.ode.bpel.runtime.ASSIGN	The Assign From or To setting is incorrect.	In the BPEL definition, correctthe Assign From and To settings.
org.apache.ode.bpel.runtime.INVOKE	The CorrelationSet name is not set correctly.	In the BPEL definition, correct the CorrelationSet name setting.

A.2.2 WSBPEL-22205

Error loading DU from store: %1

Message type

Error

Explanation

BPEL definition undeployment failed.

Parameters

%1: Name of directory where the deployed item is stored

System processing

Processing stops.

Action

Delete the business process execution environment, and create a new one.

Refer to **Creating a Business Process Execution Environment** and **Deleting a Business Process Execution Environment** under **BPEL Function Setup** in the BPEL User's Guide for information on how to create and delete a business process execution environment.

A.2.3 WSBPEL-22208

Error synchronizing with data store; %1 may be reappear after restart!

Message type

Error

Explanation

BPEL definition deployment failed.

Parameters

%1: Name of directory where the deployed item is stored

System processing

Processing stops.

Action

Activate the IJServer to which the business process execution function is deployed. This deploys the BPEL definitions correctly.

Refer to **Starting Operation** under **Flow of Operations** under **BPEL Function Operation** in the BPEL User's Guide for information on how to start the IJServer to which the business process execution function is deployed.

A.2.4 WSBPEL-22211

Deploy failed; process "{%1}DummyProcess" not found in deployment unit "%2"

Message type

Error

Explanation

The deployed BPEL definitions contain an error.

Parameters

%1: Namespace in the BPEL definitions

%2: Name of directory where the deployed item is stored

System processing

Processing stops.

Action

Ensure that the BPEL Process Name in the BPEL definitions matches the process tag definition in deploy.xml (Web application environment definition file). Then deploy the BPEL definitions again.

Refer to **Creating a Web Application Environment Definition File (deployment descriptor)** under **How to Create BPEL Definitions Using the BPEL Editor** under **BPEL Function Application Development** in the BPEL User's Guide for information on the BPEL definition BPEL Process Name and deploy.xml (Web application environment definition file).

A.2.5 WSBPEL-22214

Deploy failed; error: [CompilationErrors] Compilation completed with 1 error(s): %1

Message type

Error

Explanation

The deployed BPEL definitions contain an error.

Parameters

%1: Internal information

System processing

Processing stops.

Action

If message **WSBPEL-35207** is output before this message, follow the action indicated for message **WSBPEL-35207**.

If message **WSBPEL-35207** is not output, either [Partner Link] or [Operation] may not be set under [Details] in the BPEL definition Receive property view. Correct the BPEL definitions such that [Partner Link] and [Operation] are set.

A.2.6 WSBPEL-22215

Error in <provide> element for process {%1}%2; partnerlink %3did not identify an endpoint

Message type

Error

Explanation

The deployed BPEL definitions contain an error.

Parameters

%1: Internal information 1

%2: Internal information 2

%3: Internal information 3

System processing

Processing stops.

Action

The service tag does not exist in the Web application environment definition file (deploy.xml). Correct the file such that the service tag is defined correctly in deploy.xml.

A.2.7 WSBPEL-22302

Deployment failed within the engine, store undeploying process.

Message type

Warning

Explanation

The deployed BPEL definitions contain an error.

System processing

Processing stops.

Action

The same Role is set for My Role and Partner Role in the PartnerLink properties.

Correct the BPEL definitions such that different roles are set.

A.2.8 WSBPEL-26210

Internal error occurred

Message type

Error

Explanation

An internal error occurred.

System processing

Processing stops.

Action

Even though Reply had sent a response to one Receive, the BPEL definitions caused Reply to post a response again. Correct the BPEL definitions such that Reply operates only once in response to one Receive.

A.2.9 WSBPEL-26218

Internal error occurred.

Message type

Error

Explanation

The deployed BPEL definitions contain an error.

System processing

Processing stops.

Action

The Invoke tag does not exist in the Web application environment definition file (deploy.xml), or the PartnerLink setting under the Invoke tag is not defined correctly. Correct the file such that the Invoke tag is defined correctly in deploy.xml.

A.2.10 WSBPEL-26219

Failure during invoke: %1

Message type

Error

Explanation

An error occurred during service invocation using Invoke.

Parameters

%1: Detailed information

System processing

Processing stops.

Action

Take action indicated in the following table according to the detailed information.

WSBPEL-26219 cause and action

Detailed information	Cause	Action
No response received for invoke	Invoke was used to invoke a service but a timeout occurred. The following are possible causes: • The execution time of the invoked service was greater than expected. • Business process execution function operation was stopped and started while the service was being invoked.	• Review the invoked service to check for problems. • If business process execution function operation was stopped and started, start the business process execution function and then execute the business process again.
Error sending message	Service invocation by Invoke failed. Either the service is in a state in which requests cannot be accepted, or timeout occurred because the invoked service execution time exceeds the monitored time set in the ESI_WSBPEL_TIMEOUT environment variable.	Start the service that was invoked from Invoke and ensure that it can accept requests normally. If the service starts normally, set a suitable value in the ESI_WSBPEL_TIMEOUT environment variable. Refer to **Creating an IJServer** under **Creating a Business Process Execution Environment** under **BPEL Function Setup** in the BPEL User's Guide for information on how to set ESI_WSBPEL_TIMEOUT.
	The BPEL definitions of both the Invoke invocation source and destination may be deployed in the same business process execution environment.	Ensure that the BPEL definitions of the invocation source and destination are deployed to different business process execution environments. Refer to **Deployment to a Business Process Execution Environment** under **BPEL Definition Development** under **BPEL Function Application Development** in the BPEL User's Guide for information on

Detailed information	Cause	Action
		deployment of BPEL definitions to a business process execution environment.

A.2.11 WSBPEL-26401

Assignment Fault: %1

Message type

Information

Explanation

A fault occurred for Assign.

Parameters

%1: Internal information

A.2.12 WSBPEL-27219

Latch error, was releasing for state 1 but actually in -1

Message type

Error

Explanation

The deployed BPEL definitions contain an error.

System processing

Processing stops.

Action

The same Role is set for My Role and Partner Role in the PartnerLink properties.

Correct the BPEL definitions such that different roles are set.

The Namespace definition in the deploy tag in the Web application environment definition file may contain an error. Correct the Namespace definition in the deploy tag in deploy.xml.

A.2.13 WSBPEL-27238

Error in deployment descriptor for process %1

Message type

Error

Explanation

The deployed BPEL definitions contain an error.

Parameters

%1: Internal information

System processing

Processing stops.

Action

The PartnerLink attribute of the invoke tag in the Web application environment definition file (deploy.xml) contains an error, or does not exist. Check and if necessary correct the definition of the PartnerLink attribute of the invoke tag in deploy.xml.

A.2.14 WSBPEL-27239

Error in deployment descriptor for process %1

Message type

Error

Explanation

The deployed BPEL definitions contain an error.

Parameters

%1: Internal information

System processing

Processing stops.

Action

Ensure that the PartnerLink in the BPEL definitions matches the provide tag or invoke tag definition in deploy.xml (Web application environment definition file). Then deploy the BPEL definitions again.

Refer to **Creating a Web Application Environment Definition File (deployment descriptor)** under **How to Create BPEL Definitions Using the BPEL Editor** under **BPEL Function Application Development** in the BPEL User's Guide for information on the BPEL definition PartnerLink and the provide tag in deploy.xml (Web application environment definition file).

A.2.15 WSBPEL-27242

Job could not be completed after %1 retries: %2

Message type

Error

Explanation

Business process execution failed.

Parameters

%1: Internal information 1

%2: Internal information 2

System processing

Processing stops.

Action

Refer to the error messages output before and after this message and resolve the problem, and then execute the business process again.

The BPEL definitions of both the Invoke invocation source and destination may be deployed in the same business process execution environment. If so, deploy the BPEL definitions of the invocation source and destination to different business process execution environments.

Refer to **Deployment to a Business Process Execution Environment** under **BPEL Definition Development** under **BPEL Function Application Development** in the BPEL User's Guide for information on deployment of BPEL definitions to a business process execution environment.

A.2.16 WSBPEL-27244

Scheduled job failed; %1

Message type

Error

Explanation

Business process execution failed.

Parameters

%1: Internal information

System processing

Processing stops.

Action

Refer to the error messages output before and after this message and resolve the problem, and then execute the business process again.

The BPEL definitions of both the Invoke invocation source and destination may be deployed in the same business process execution environment. If so, deploy the BPEL definitions of the invocation source and destination to different business process execution environments.

Refer to **Deployment to a Business Process Execution Environment** under **BPEL Definition Development** under **BPEL Function Application Development** in the BPEL User's Guide for information on deployment of BPEL definitions to a business process execution environment.

A.3 WSBPEL-30000 numbers

These are the messages from WSBPEL-30000 to WSBPEL-39999.

A.3.1 WSBPEL-35102

openResource: unable to open file URL %1

Message type

Error

Explanation

File read failed.

Parameters

%1: Detailed information

System processing

Processing stops.

Action

Read failed for the file indicated in the detailed information.

Refer to the error messages output before and after this message and resolve the problem.

A.3.2 WSBPEL-35207

It is a compilation information. %1

Message type

Error

Explanation

The deployed BPEL definitions contain an error.

Parameters

%1: Detailed information

System processing

Processing stops.

Action

Take action indicated in the following table according to the character string included in the detailed information.

WSBPEL-35207 cause and action

Character string included in detailed information	Cause	Action
UndeclaredVariable	The following applies for an activity that requires a Variable to be specified: • The Variable is not specified. • An undefined Variable is specified. • The specified Variable does not have Data Type set.	Review the activity that requires a Variable to be specified and correct the BPEL definition.
UseOfUninitializedCorrelationSet	In a BPEL definition that has more than one Receive, the option [Create a new Process instance if one does not already exist] under [Details] is selected in the property view of a Receive other than the first Receive.	In the BPEL definition, ensure that the option [Create a new Process instance if one does not already exist] under [Details] is not selected in the property view of any but the first Receive.
UndeclaredPropertyAlias	Property Alias is not set in CorrelationSet.	In the BPEL definition, set Property Alias in CorrelationSet.
UndeclaredPartnerLink	[Partner Link] is not set under [Details] in the Receive or Reply property view.	In the BPEL definition, set [Partner Link] under [Details] in the Receive and Reply property view.
UndeclaredOperation	[Operation] is not set under [Details] in the Receive or Reply property view.	In the BPEL definition, set [Operation] under [Details] in the Receive and Reply property view.
DuplicatePartnerLinkDecl, or PartnerLinkDoesNotDeclarePartnerRole	There is more than one PartnerLink with the same name.	If there is more than one PartnerLink with the same name, temporarily delete the relevant PartnerLinks. Correct the BPEL definition so that each PartnerLink is re-created with a different name.
OutputVariableMustBeSpecified	[Variable] is not set under [Details] in the Reply property view.	Inthe BPEL definition, set [Variable] under [Details] in the Reply property view.

Character string included in detailed information	Cause	Action
XPathSyntax	There is an error in the Link for Assign, While, If, Flow or in the Path1.0 condition expression for [Join Behavior] in the property view for each activity. The name in Catch [Fault Name] within the FaultHandler may also be incorrect.	In the BPEL definition ensure that the Link for Assign, While, If, Flow and the Path1.0 condition expression for [Join Behavior] in the property view for each activity are correct. Check that the name in Catch [Fault Name] within the FaultHandler is correct.
DuplicateVariableDecl	There is more than one Variable with the same name.	Check that each Variable in the BPEL definition has a unique name.
VariableDeclMissingType	The type is not set for a Variable.	In the BPEL definition, check that the type is set for all variables.
IfWithNoCondition	NoExpression is specified for [Expression language] under [Details] in the If property view.	In the BPEL definition, check that Same as Process (XPath 1.0 in BPEL 2.0) is specified for [Expression language] under [Details] in the If property view.
MessageVariableRequired	For [Input Variable] or [Output Variable] under [Details] in the Invoke property view, a Variable was created with Create Global Input Variable selected.	In the BPEL definition, check that an already created Variable is selected for [Input Variable] and [Output Variable] under [Details] in the Invoke property view.
SchemaError	The [Namespace] or [BPEL Process Name] specification contains an error in the [Create a BPEL Process File] screen used to create the BPEL process file.	In the BPEL definition, correct the [Namespace] and [BPEL Process Name] in the [Create a BPEL Process File] screen.
EmptySequence	No activities are defined within Sequence.	In the BPEL definition, check that activities are defined within Sequence and correct if necessary.
UndeclaredLink	The [Join Behavior] XPath1.0 condition expression in the property view of each activity	In the BPEL definition, correct the [Join Behavior] XPath1.0 condition expression in the

Character string included in detailed information	Cause	Action
	contains an error.	property view of each activity.
CopyToMessageFromNonMessag	The From or To setting for Assign contains an error.	In the BPEL definition, correct From and To settings for Assign.
CopyFromMessageToNonMessage	The From or To setting for Assign contains an error.	In the BPEL definition, correct From and To settings for Assign.
InvokeNoOutputMessageForOutputOp	[Output Variable] is not set under [Details] in the Invoke property view.	In the BPEL definition, set the [Output Variable] under [Details] in the Invoke property view.
InvokeNoInputMessageForInputOp	[Input Variable] is not set under [Details] in the Invoke property view.	In the BPEL definition, set the [Input Variable] under [Details] in the Invoke property view.
Other	The WSDL definition of the BPEL definitions may contain an error, or the WSDL definition may not be deployed.	If the WSDL definition has not been deployed, deploy the definition. If it has been deployed, check the WSDL definition and correct it if necessary. If a WSDL definition imported from the WSDL definitions has not been deployed, deploy the imported definition as well.

A.3.3 WSBPEL-36301

Unrecognized element in BPEL dom: %1

Message type

Warning

Explanation

The BPEL definition contains an element that is not required.

Parameters

%1: Internal information

System processing

Processing stops.

Action

This message is displayed if Documentation is entered in any of the BPEL definition elements.

BPEL execution is not affected.

A.4 WSBPEL-40000 numbers

These are the messages from WSBPEL-40000 to WSBPEL-49999.

A.4.1 WSBPEL-40201

Error executing reply transaction; reply will be lost.

Message type

Error

Explanation

An error occurred when a service was invoked by Invoke.

System processing

Processing stops.

Action

If message **WSBPEL-40208** is output before or after this message, follow the action indicated for message **WSBPEL-40208**.

The BPEL definitions of both the Invoke invocation source and destination may be deployed in the same business process execution environment. If so, deploy the BPEL definitions of the invocation source and destination to different business process execution environments.

Refer to **Deployment to a Business Process Execution Environment** under **BPEL Definition Development** under **BPEL Function Application Development** in the BPEL User's Manual for information on deployment of BPEL definitions to a business process execution environment.

A.4.2 WSBPEL-40202

Unable to process response: %1

Message type

Error

Explanation

An error occurred when a service was invoked by Invoke.

Parameters

%1: Internal information

System processing

Processing stops.

Action

Message **WSBPEL-40208** is output before or after this message. Therefore, follow the action indicated for message **WSBPEL-40208**.

A.4.3 WSBPEL-40203

Error executing replyWithFailure transaction; reply will be lost.

Message type

Error

Explanation

Business process execution failed.

System processing

Processing stops.

Action

The BPEL definitions of both the Invoke invocation source and destination may be deployed in the same business process execution environment. Deploy the BPEL definitions of the invocation source and destination to different business process execution environments.

Refer to **Deployment to a Business Process Execution Environment** under **BPEL Definition Development** under **BPEL Function Application Development** in the BPEL User's Manual for information on deployment of BPEL definitions to a business process execution environment.

A.4.4 WSBPEL-40206

Error sending message %1

Message type

Error

Explanation

An error occurred when a service was invoked by Invoke.

Parameters

%1: Internal information

System processing

Processing stops.

Action

Message **WSBPEL-26219** is output before or after this message. Therefore, follow the action indicated for message **WSBPEL-26219**.

The BPEL definitions of both the Invoke invocation source and destination may be deployed in the same business process execution environment. If so, deploy the BPEL definitions of the the invocation source and destination to different business process execution environments.

A.4.5 WSBPEL-40207

Error processing response for MEX %1

Message type

Error

Explanation

An error occurred when a service was invoked by Invoke.

Parameters

%1: Internal information

System processing

Processing stops.

Action

Message **WSBPEL-26219** is output before or after this message. Therefore, follow the action indicated for message **WSBPEL-26219**.

The BPEL definitions of both the Invoke invocation source and destination may be deployed in the same business process execution environment. If so, deploy the BPEL definitions of the invocation source and destination to different business process execution environments.

A.4.6 WSBPEL-40208

Timeout or execution error when waiting for response to MEX %1

Message type

Error

Explanation

Business process execution failed.

Parameters

%1: Internal information

System processing

Processing stops.

Action

The table below shows the possible causes of the error. Check the cause and take appropriate action.

If message **WSBPEL-17203**, **WSBPEL-20201**, or **WSBPEL-26219** is output before or after this message, follow the action indicated for the message.

WSBPEL-40208 cause and action

Cause	Action
Timeout occurred because the business process execution time exceeds the monitoring time set in the ESI_WSBPEL_TIMEOUT environment variable.	Set a suitable value in the ESI_WSBPEL_TIMEOUT environment variable. Refer to **Creating an IJServer** under **Creating a Business Process Execution Environment** under **BPEL Function Setup** in the BPEL User's Manual for information on how to set ESI_WSBPEL_TIMEOUT.
The option [Create a new Process instance if one does not already exist] may not be selected under [Details] in the Receive property view of the first BPEL definition.	In the BPEL definition, ensure that the option [Create a new Process instance if one does not already exist] is selected under [Details] in the Receive property view of the first BPEL definition.
If CorrelationSet is set for Invoke, Receive, or Reply, the position content within the message set in Property Alias may not match at the CorrelationSet start time and the time of message receipt.	Revise the invocation destination service processing and the CorrelationSet settings.
The business process BPEL definition may have been undeployed during execution.	Check whether or not the BPEL definition is deployed.

A.4.7 WSBPEL-40210

Commit failed

Message type

Error

Explanation

Business process execution failed.

System processing

Processing stops.

Action

The BPEL definitions of both the Invoke invocation source and destination may be deployed in the same business process execution environment. Deploy the BPEL definitions of the invocation source and destination to different business process execution environments.

A.4.8 WSBPEL-40220

Could not create external service.

Message type

Error

Explanation

The deployed BPEL definitions contain an error.

System processing

Processing stops.

Action

Message **WSBPEL-44202** is output before or after this message. Therefore, follow the action indicated for message **WSBPEL-44202**.

A.4.9 WSBPEL-40302

Fault response: faultType=(unkown) %1

Message type

Warning

Explanation

A fault occurred.

Parameters

%1: Internal information

System processing

System processing continues..

Action

If an error message is output before and after this message, take the action advised in those messages.

A.4.10 WSBPEL-44202

Deployment of %1 failed, aborting for now

Message type

Error

Explanation

The deployed BPEL definitions contain an error.

Parameters

%1: Name of directory where the deployed item is stored

System processing

Processing stops.

Action

The table below shows the possible causes of the error. Check the cause and take appropriate action.

If message **WSBPEL-22211**, **WSBPEL-22214**, **WSBPEL-22302**, **WSBPEL-27219**, **WSBPEL-27238**, **WSBPEL-27239**, or**WSBPEL-35207** is output before or after this message, follow the action indicated for the message.

WSBPEL-44202 cause and action

Cause	Action
NoExpressin is specified for [Expression language] under [Details] in the While property view.	In the BPEL definition, specify Same as Process (XPath 1.0 in BPEL 2.0) for [Expression language] under [Details] in the While property view.
An XPath1.0 condition expression is not specified for [Expression language] under [Details] in the While property view.	In the BPEL definition, specify an XPath1.0 condition for [Expression language] under [Details] in the While property view.
The activity to be executed was not defined at the time of While condition establishment.	In the BPEL definition, ensure that the activity to be executed is defined at the time of While condition establishment.
Even though Same as Process (XPath 1.0 in BPEL 2.0) is set for [Expression language] under [Details] in the Link property view for Flow, an XPath1.0 condition expression is not specified.	In the BPEL definition, specify an XPath1.0 condition expression for [Expression language] under [Details] in the Link property view for Flow.

Cause	Action
An XPath1.0 condition expression is not specified for [Expression language] under [Details] in the If property view.	In the BPEL definition, specify an XPath1.0 condition expression for [Expression language] under [Details] in the If property view.
The activity to be executed was not defined at the time of If, Else If, or Else condition establishment.	In the BPEL definition, ensure that the activity to be executed was defined at the time of If, Else If, or Else condition establishment.
The Property Alias setting of CorrelationSet contains an error.	In the BPEL definition, correct the Property Alias of CorrelationSet.
The BPEL definition file (.bpel) is not deployed.	Deploy the BPEL definition file (.bpel).
The deployed BPEL definition file is insufficient.	To deploy BPEL definitions, the BPEL definition file (.bpel), the WSDL definition file (.wsdl), and the Web application environment definition file (deploy.xml) must all be deployed.
The URL entry in the WSDL definition soap:address tag contains an error.	Correct the URL entry in the WSDL definition soap:address tag.
The WSDL plnk:partnerLinkType tag entry contains an error.	Correct the WSDL plnk:partnerLinkType tag entry.
The deploy tag does not exist in the Web application environment definition file (deploy.xml).	Ensure that the deploy tag is defined correctly in the Web application environment definition file (deploy.xml).
The Namespace definition in the deploy tag in the Web application environment definition file (deploy.xml) contains an error.	Correct the Namespace definition in the deploy tag in the Web application environment definition file (deploy.xml).
The process tag does not exist in the Web application environment definition file (deploy.xml).	Correct the process tag definition in the Web application environment definition file (deploy.xml).
The name attribute in the	Correct the name attribute in

Cause	Action
process tag in the Web application environment definition file (deploy.xml) contains an error, or the name attribute does not exist.	the process tag in the Web application environment definition file (deploy.xml).
The provide tag does not exist in the Web application environment definition file (deploy.xml).	Correct the provide tag definition in the Web application environment definition file (deploy.xml).
The PartnerLink attribute of the provide tag in the Web application environment definition file (deploy.xml) contains an error, or the PartnerLink attribute does not exist.	Correct the PartnerLink attribute of the provide tag in the Web application environment definition file (deploy.xml).
The service tag does not exist in the Web application environment definition file (deploy.xml).	Correct the service tag definition in the the Web application environment definition file (deploy.xml).
The name attribute of the service tag in the Web application environment definition file (deploy.xml) contains an error, or the name attribute does not exist.	Correct the name attribute of the service tag in the Web application environment definition file (deploy.xml).
The port attribute of the service tag in the Web application environment definition file (deploy.xml) contains an error, or the port attribute does not exist.	Correct the port attribute of the service tag in the Web application environment definition file (deploy.xml).
A definition that should be entered in the invoke tag of the Web application environment definition file (deploy.xml) is defined in the provide tag.	Correct the invoke tag and the provide tag in the Web application environment definition file (deploy.xml).
The active tag value in the Web application environment definition file (deploy.xml) contains an error.	Only true can be specified as the active tag value in the Web application environment definition file (deploy.xml). Correct the value to true.
Even though Same as Process	In the BPEL definition, ensure

Cause	Action
(XPath 1.0 in BPEL 2.0) is set for [Expression language] under [Join Behavior] in the property view for each activity, an XPath1.0 condition expression is not specified.	that an XPath1.0 condition expression is specified for [Expression language] under [Join Behavior] in the property view for each activity.
The [Fixed Value] specification under [Details] in the Assign property view contains an error.	In the BPEL definition, ensure that [Fixed Value] under [Details] in the Assign property view is correctly set.
The Invoke activity name may not be set.	In the BPEL definition, ensure that the Invoke activity name is correctly set.
The WSDL definitions of the BPEL definition may contain an error.	Review the WSDL definitions and deploy the correct WSDL definitions.

A.4.11 WSBPEL-45304

Illegal environment variable

Message type

Warning

Explanation

When the IJServer to which the business process execution environment is deployed started, it detected that an abnormal value is set for ESI_WSBPEL_TIMEOUT in the environment variables in the WorkUnit settings of the IJServer environment settings.

System processing

Processing continues using the initial value (300 seconds) as the ESI_WSBPEL_TIMEOUT setting value.

Action

Correct the value set for ESI_WSBPEL_TIMEOUT in the environment variables in the WorkUnit settings of the IJServer environment settings at the IJServer to which the business process execution environment is deployed.

Refer to **Creating an IJServer** under **Creating a Business Process Execution Environment** under B**PEL Function Setup** in the BPEL User's Guide for information on how to set ESI_WSBPEL_TIMEOUT.

Glossary

BPEL editor

The BPEL editor creates BPEL definitions visually in Interstage Studio.
With this editor, detailed knowledge of WS-BPEL2.0 conventions is not required. Users can create BPEL definitions that conform to WS-BPEL2.0 conventions easily just by connecting icons corresponding to services and branching conditions.

BPEL activation application

The BPEL activation application starts business processes based on BPEL definitions.

BPEL functions

BPEL functions are used to develop definitions that conform to WS-BPEL2.0 and to execute business processes based on the definitions.

BPEL definitions

BPEL definitions define business processes that conform to WS-BPEL2.0.

GUI is the abbreviation for Graphical User Interface.
GUI provide the means for users to interface (view and operate) with software graphically.

Business process

Business process functionally connects a number of small tasks or processes into one large task or process.

Business process execution function

The business process execution function executes business processes in accordance with BPEL definitions.

DTD

DTD is the abbreviation for Document Type Definition.

DTD is one of the XML schema languages.

J2EE

J2EE is the abbreviation for Java2 Enterprise Edition.
J2EE comprises the distributed application component architecture and conventions advocated by Sun Microsystems, Inc. (USA). It is the standard specification for Java component development.

Java

Java, developed by Sun Microsystems, Inc. (USA), is an object-oriented programming language that enables development of Web-based high-level interactive (bidirectional) applications.

Messaging

Sending and receiving messages in real-time between multiple users.

Service

A service is based on SOA concepts and is a combination of targeted application programs. Services are developed with the premise that they will be invoked from something external.

Sequence

The sequence is a series of activity from which order is executed next.

SOA

SOA is the abbreviation for Service-Oriented Architecture.
Service oriented architecture publishes, on a network, software components and functions constructed and arranged to match business process structural units, and enables mutual linkage between these components and functions. This enables construction of flexible enterprise systems and inter-enterprise business process execution systems.

SOAP

SOAP is the abbreviation for Simple Object Access Protocol.
SOAP is a protocol for invoking and using, via a network, software component functions operating on other computers.
SOAP uses HTTP for transporting data, and uses XML to code transported instructions and data. In environments that support HTTP communication, use of SOAP enables a system to send service requests to remote computers and to receive the responses to those requests.

WS-BPEL2.0

WS-BPEL2.0 is the abbreviation for Web Services Business Process Execution Language Version 2.0.
WS-BPEL2.0 is syntax specifications used to code the business processes that make one business system by connecting together multiple services and creating linkages. In 2007, WS-BPEL2.0 was approved as an OASIS standard by the standardization body Organization for the Advancement of Structured Information Standards (OASIS).

WSDL

WSDL is the abbreviation for Web Service Description Language.
WSDL is an interface coding language for XML-based Web services. It can code information such as Web service access points (URLs), the protocol being used (SOAP, HTTP, MIME), and message format (XML Schema).

XML

XML is the abbreviation for Extensible Markup Language.
XML is considered to be a next-generation language of HTML, the conventional Internet language. Whereas HTML uses a fixed markup method, XML enables document-specific methods to be set.

XML Schema

XML Schema is the specifications for defining XML document structures (schemas). In contrast with conventional DTD, XMLSchema introduces data types such as numerical dates, introduces inheritance of structural definitions, and makes data exchange easier.

XML namespace

These are unique namespaces used to tie together the elements and attribute names used in XML documents.