WebSphere® Process Server for z/OS

Version 6.0.1

Troubleshooting and Support

Note
Before using this information, be sure to read the general information in "Notices" on page 57.

23 June 2006

This edition applies to version 6, release 0, modification 1 of WebSphere Process Server for z/OS (product number 5655-N53) and to all subsequent releases and modifications until otherwise indicated in new editions.

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Contents

Troubleshooting and support

Resources for troubleshooting IBM® WebSphere® Process Server include a strategy for troubleshooting and diagnosing problems, documentation about WebSphere Process Server tools that help you track and monitor errors, specific troubleshooting documentation organized by the tasks you are performing in WebSphere Process Server, and links to technical support Web sites.

WebSphere Process Server documentation (in PDF format)

Troubleshooting overview

Troubleshooting is the process of finding and eliminating the cause of a problem. Whenever you have a problem with your IBM software, the troubleshooting process begins as soon as you ask yourself what happened.

A basic troubleshooting strategy at a high level involves:

1. Recording the symptoms.
2. Recreating the problem.
3. Eliminating possible causes.
4. Using diagnostic tools.

Recording the symptoms of the problem

Depending on the type of problem you have, whether it be with your application, your server, or your tools, you might receive a message that indicates something is wrong. Always record the error message that you see. As simple as this sounds, error messages sometimes contain codes that might make more sense as you investigate your problem further. You might also receive multiple error messages that look similar but have subtle differences. By recording the details of each one, you can learn more about where your problem exists.

Recreating the problem

Think back to what steps you were doing that led you to this problem. Try those steps again to see if you can easily recreate this problem. If you have a consistently repeatable test case, you will have an easier time determining what solutions are necessary.

- How did you first notice the problem?
- Did you do anything different that made you notice the problem?
- If this worked before what has changed? The change can refer to any type of change made to the system, ranging from adding new hardware or software, to configuration changes to existing software.
- What was the first symptom of the problem you witnessed? Were there other symptoms occurring around that point of time?
- Does the same problem occur elsewhere? Is only one machine experiencing the problem or are multiple machines experiencing the same problem?
- What messages are being generated that could indicate what the problem is?

Eliminating possible causes

Narrow the scope of your problem by eliminating components that are not causing the problem. By using a process of elimination, you can simplify your problem and avoid wasting time in areas that are not culprits. Consult the information in this product and other available resources to help you with your elimination process.

- Has anyone else experienced this problem? See "Searching knowledge bases" on page 51.
- Is there a fix or a download? See "Getting fixes" on page 52.

Using diagnostic tools

As a more advanced task, there are various tools that you can use to analyze and diagnose problems with your system. To learn how to use these tools see "Diagnosing problems" on page 13.

Additional troubleshooting information

For specific troubleshooting issues and fixes, refer to the information below:

Troubleshoot problems based on function that occur during a task

Troubleshoot problems that crop up during a main task such as migrating, installing, administering, securing, or deploying applications. For more information, see "Troubleshooting by function" on page 14.

Debug applications during development

To debug applications that run on IBM WebSphere Process Server you must use your application development tool. For more information, select **Debugging components** in the WebSphere Integration Developer information center or in the online documentation installed with IBM WebSphere Integration Developer.

Add tracing and logging to your applications

Designers and developers of applications that run on the application server might find it useful to use Java™ logging for generating their application logging. This approach has advantages over simply adding System.out.println statements to your code. For more information, see "Adding logging and tracing to your application" on page 3.

Use WebSphere Application Server troubleshooting capabilities

WebSphere Process Server is built on IBM WebSphere Application Server, Network Deployment, version 6.0. WebSphere Process Server also works with infrastructure and platform services from IBM WebSphere Application Server, version 6.0. For more information about troubleshooting in WebSphere Application Server, select **Troubleshooting and support** in the WebSphere Application Server for z/OS information center.

Debugging applications

In order to debug applications, you must use your application development tool.

For more information about debugging applications, select **Debugging components** in the WebSphere Integration Developer information center or in the online documentation installed with IBM WebSphere Integration Developer.

Adding logging and tracing to your application

Designers and developers of applications that run on IBM WebSphere Process Server may find it useful to use Java logging for generating their application logging.

IBM WebSphere Process Server is built on IBM WebSphere Application Server, Network Deployment, version 6.0.1 and also works with infrastructure and platform services from IBM WebSphere Application Server, version 6.0.1. Refer to the **Logging and tracing with Java logging** and **The Common Base Event in WebSphere Application Server** topics in the WebSphere Application Server for z/OS information center.

1. Follow the instructions in Logging and tracing with Java logging.
2. Follow the instructions in The Common Base Event in WebSphere Application Server.
3. In addition, WebSphere Process Server monitoring capabilities use logging. For more information, refer to the WebSphere Process Server *Monitoring* PDF file.

Managing WebSphere Process Server failed events

The administrator can managed WebSphere Process Server failed events using the failed event manager available in the administrative console.

What is a failed event?

In the context of WebSphere Process Server, an event is a request that is received by a WebSphere Process Server application. It can come from an external source (such as an inbound application adapter) or an external invocation to a web service. The event is comprised of a reference to the business logic it wants to operate and its data, stored in a Service Data Object (a business object). When an event is received, it is processed by the appropriate WebSphere Process Server application business logic.

A single thread of execution can branch off into multiple branches (or threads); the individual branches are linked to the main invoking event by the same session context.

If this business logic in one of these branches cannot execute completely due to system failure, component failure, or component unavailability, the event moves into the failed state. If multiple branches fail, a failed event is created for each. The WebSphere Process Server Recovery subsystem handles the following types of failed events:

- Event failures that occur during an asynchronous invocation of a Service Component Architecture (SCA) operation
- Event failures that are caused by a runtime exception (in other words, any exception that is not declared in the methods used by the business logic)

The Recovery subsystem collects these types of failed events and makes them available for administrative purposes through the failed event manager interface.

Failed events typically have source and destination information associated with them. The source and destination are based on the failure point (the location where the invocation fails), regardless of the type of interaction. Consider the following example, where Component A is asynchronously invoking Component B. The request message is sent from A to B, and the response message is sent from B to A.

- If the exception occurs during the initial request, Component A is the source and Component B is the destination for the purposes of the failed event manager.
- If the exception occurs during the response, Component B is the source and Component A is the destination for the purposes of the failed event manager.

This is true for all asynchronous invocations. (The failed event manager does not handle failures from synchronous invocations.)

How are failed events managed?

An administrator uses the failed event manager available in the administrative console to browse and manage all WebSphere Process Server failed events. Failed events can be resubmitted or deleted from the system.

Common tasks for managing failed events include:

- Browsing all failed events
- Searching for failed events by specific criteria
- Editing data for a failed event
- Resubmitting failed events
- Deleting failed events

To access the failed event manager, click **Integration Applications > Failed Event Manager**.

Role-based access for failed event manager

The failed event manager uses role-based access control to the failed event data and tasks. Only the administrator and operator roles are authorized to perform tasks within the failed event manager. Users logged in as either administrator or operator can view all data associated with failed events and can perform all tasks.

Note: This security infrastructure is inherited from the base WebSphere Application Server product. For more information about security, see the information centers for WebSphere Application Server and WebSphere Process Server.

Finding failed events

Before you can edit, resubmit, or delete failed events, you must identify them. Use the search functionality in the failed event manager to find all failed events on the server, or to find a specific subset of failed events.

This topic provides instructions for finding all failed events on the server, with references to topics for conducting other searches based on source, destination, date, business object type, exception text, or a combination of those criteria.

Security role required: You must be logged in as administrator or operator to perform this task.

1. Ensure the administrative console is running.
2. Click **Integration Applications > Failed Event Manager** to enter the failed event manager.
3. From the **Failed events on this server** box, click **Get all failed events**.

   The Search Results page opens, displaying a list of all the WebSphere Process Server failed events on the server.

Searching for failed events by destination

Use the Search page's **By Destination** tab to find only those failed events that are associated with a specific destination module, component, or method. The failed event manager determines the destination based on the point of failure, regardless of the type of interaction.

When performing a search, note the following:

- The values for the fields are case sensitive.
- The fields accept the asterisk (*) wildcard character.
- If you leave any field on this tab blank, the blank field is treated as a wild card. The failed event manager will search in all components, modules, or methods.
- You can search on a single destination criteria or on multiple criteria. Searching on two or more of the destination criteria provides a more refined list of failed events.

Security Role Required: You must be logged in as administrator or operator to perform this task.

1. Ensure the administrative console is running, and then click **Integration Applications > Failed Event Manager** to enter the failed event manager.
2. From the main failed event manager page, click **Search by destination**.

   The Search page opens with the **By Destination** tab selected.
3. Specify the search criteria you want to use. You can use any combination of the following fields to customize your search:
   - The **Destination module** field—Use this field to specify the failed event's destination module.
   - The **Destination component** field—Use this field to specify the failed event's destination component.
   - The **Destination method** field—Use this field to specify the failed event's destination method.
4. Click **OK** to begin the search.

   The Search Results page opens and displays a list of all failed events that were destined for the specified module, component, or method.

Related concepts

"Managing WebSphere Process Server failed events" on page 3
The administrator can managed WebSphere Process Server failed events using the failed event manager available in the administrative console.

Searching for failed events by source

Use the Search page's **By Source** tab to find only those failed events that originated from a specific source module, component, or both. The failed event manager determines the source based on the point of failure, regardless of the type of interaction.

When performing a search, note the following:

- The values for the fields are case sensitive.
- The fields accept the asterisk (*) wildcard character.
- If you leave either field on this tab blank, the blank field is treated as a wild card. The failed event manager will search in all components or modules.

- To get the most refined list of failed events, use both the **Source module** and **Source component** fields.

Security Role Required: You must be logged in as administrator or operator to perform this task.

1. Ensure the administrative console is running, and then click **Integration Applications > Failed Event Manager** to enter the failed event manager.
2. From the main failed event manager page, click **Search by source**.

   The Search page opens with the **By Source** tab selected.
3. Specify the search criteria. You can use one or both of the following fields:
   - The **Source module** field—Use this field to specify the module that the failed event originated from.
   - The **Source component** field—Use this field to specify the component that the failed event originated from.
4. Click **OK** to begin the search.

   The Search Results page opens and displays a list of all failed events that originated from the specified module, component, or both.

   Related concepts

   "Managing WebSphere Process Server failed events" on page 3
   The administrator can managed WebSphere Process Server failed events using the failed event manager available in the administrative console.

Searching for failed events by date

Use the Search page's **By Date** tab to find only those events that failed during a specific time period.

When performing a search, note the following:

- The format for the date and time are locale-specific. An example of the appropriate format is provided with each field.

  Note: The values you supply must match the required format exactly. If you provide an incorrectly formatted value, the failed event manager displays a warning and substitutes the default value for that field.
- The time is always local to the server. It is not updated to reflect the local time of individual machines running the administrative console.
- You must specify a value for both fields on this tab.

Security Role Required: You must be logged in as administrator or operator to perform this task.

1. Ensure the administrative console is running, and then click **Integration Applications > Failed Event Manager** to enter the failed event manager.
2. From the main failed event manager page, click **Search by date**.
3. Use the **From Date** field to specify the starting date and time. Because the required format for the value varies by locale, the failed event manager provides a locale-appropriate example above this field. Ensure the value you enter is formatted in the same manner as the example provided. (For instance, the required format for the en_US locale is *MM/DD/YY HH:MM Meridiem*; therefore, a correctly formatted value for this field looks like `11/10/05 4:30 PM`.)
4. Use the **To Date** field to specify the ending date and time. Because the required format for the value varies by locale, the failed event manager provides a

locale-appropriate example above this field. Ensure the value you enter is formatted in the same manner as the example provided. (For instance, the required format for the en_US locale is *MM/DD/YY HH:MM Meridiem*; therefore, a correctly formatted value for this field looks like `11/17/05 4:30 PM`.)

5. Click **OK** to begin the search.

   The Search Results page opens and displays a list of all failed events that originated during the specified time period.

Searching for failed events by business object type

Use the Search page's **By Type** tab to find only those failed events that are associated with a specific business object.

Security Role Required: You must be logged in as administrator or operator to perform this task.

1. Ensure the administrative console is running, and then click **Integration Applications > Failed Event Manager** to enter the failed event manager.
2. From the main failed event manager page, click **Search by business object type**.

   The Search page opens with the **By Type** tab selected.
3. Specify the business object type you want to search against by using one of the following:
   - The **Select the business object type** menu—Use this drop-down menu to select the type of business object associated with the failed events. This menu contains a list of all business object types found in the failed events on the server.
   - The **Other business object type** field—Use this field to specify the type of business object associated with the failed events. The field accepts the asterisk (*) wildcard character. All values are case sensitive.
4. Click **OK** to begin the search.

   The Search Results page opens and displays a list of all failed events that are associated with the specified business object type.

Searching for failed events by exception

Use the Search page's **By Exception** tab to find only those failed events that are associated with a specific exception. You can specify part or all of the exception text.

Security Role Required: You must be logged in as administrator or operator to perform this task.

1. Ensure the administrative console is running, and then click **Integration Applications > Failed Event Manager** to enter the failed event manager.
2. From the main failed event manager page, click **Search by exception text**.

   The Search page opens with the **By exception** tab selected.
3. In the **Exception text** field, type the text associated with the exception you want to search against.

   You can specify all or part of the exception text, as well as the asterisk (*) wildcard character to make the search easier. The values in this field are case sensitive.

Note: If you leave the **Exception text** field blank, it is treated as a wild card; all failed events are returned.

4. Click **OK** to begin the search.

   The Search Results page opens and displays a list of all failed events that are associated with the specified exception text.

Performing an advanced search for failed events

Use the Search page's **Advanced** tab to perform a more refined search for failed events by using a combination of the criteria found on the other search tabs: source, destination, date, business object type, and exception text.

Note the following:

- Unless otherwise noted below, all fields accept the asterisk (*) wildcard character.
- Leaving a field blank causes it to be treated as a wild card.

The advanced search is not optimized; executing an advanced search on a large set of failed events can reduce performance.

Security Role Required: You must be logged in as administrator or operator to perform this task.

1. Ensure the administrative console is running, and then click **Integration Applications > Failed Event Manager** to enter the failed event manager.
2. From the main failed event manager page, click **Advanced search**.

   The Search page opens with the **Advanced** tab selected.
3. Specify the search criteria you want to use. You can use any combination of the following fields to customize your search:
   - The **Destination module** field—Use this field to specify the failed event's destination module.
   - The **Destination component** field—Use this field to specify the failed event's destination component.
   - The **Destination method** field—Use this field to specify the failed event's destination method.
   - The **Source module** field—Use this field to specify the module that the failed event originated from.
   - The **Source component** field—Use this field to specify the component that the failed event originated from.
   - The **From Date** field—Use this field to specify the starting date and time if you want to search within a specific time period. This field does not accept the asterisk (*) wildcard character.
   - The **To Date** field—Use this field to specify the ending date and time if you want to search within a specific time period. This field does not accept the asterisk (*) wildcard character.
   - The **Business object type** field—Use this field to specify the type of business object associated with the failed events.
   - The **Exception text** field—Use this field to specify the text associated with the exception you want to search against.
4. Click **OK** to begin the search.

   The Search Results page opens and displays a list of all failed events that meet the specified criteria.

Working with data in failed events

Each failed event has data associated with it; often, that data can be edited before an event is resubmitted. There are two basic types of data for a failed event: data about the event, and business data.

Data about the failed event

Each failed event has the following data associated with it:

- The unique message ID and session ID for the event
- The service invocation type between SCA components
- The names of the module and component from which the event originated (the source). The failed event manager determines the source of an event based on the location where the invocation failed.
- The names of the destination module, component and method for the event. The failed event manager determines the event's destination based on the location where the invocation failed.
- The time the event failed
- The exception thrown when the event failed

This data cannot be edited. In addition, failed events can have associated trace and expiration data, both of which can be edited.

Business data

Events typically include business data. Business data can be encapsulated in a business object, or it can be simple data that is not part of a business object. Business data is edited with the business data editor available in the failed event manager.

Related tasks

"Browsing data in failed events"

"Editing trace or expiration data in a failed event" on page 10
The Failed Event Details page enables you to set or modify values for the trace control and expiration date associated with a failed event.

"Editing business data in a failed event" on page 11

Browsing data in failed events

Each failed event has two types of data associated with it:

- Failed event data—Information about the failed event itself, including the source and destination for the event, the time it failed, the exception it failed with, its message and session IDs, and its trace and expiration settings.
- Business data—Information contained in the event. The business data can be encapsulated in a business object, or it can be simple data that is not part of a business object.

Security role required: You must be logged as administrator or operator to perform this task.

1. Ensure that the failed event manager is open and that you have retrieved a list of the failed events on your system.
2. From the failed event manager's Search Results page, click the ID (found in the Message ID column) of the failed event whose data you want to browse.

The Failed Event Details page opens and displays all of the information about the event.

3. If you want to browse the business data associated with the failed event, click **Edit business data**.

   The Business Data Editor collection page opens, displaying the business data associated with the failed event. Each parameter name in the hierarchy is a link. If the parameter is a simple data type, clicking its name will open up a form so you can edit the parameter's value. If the paramter is a complex data type, clicking its name will expand the hierachy further.

   Related tasks

   "Finding failed events" on page 4

   "Editing trace or expiration data in a failed event"
   The Failed Event Details page enables you to set or modify values for the trace control and expiration date associated with a failed event.

   "Editing business data in a failed event" on page 11

Editing trace or expiration data in a failed event

The Failed Event Details page enables you to set or modify values for the trace control and expiration date associated with a failed event.

Important: Any edits you make to the trace or expiration data are only saved locally until you resubmit the event. If you perform any other action before resubmitting the event, all edits are lost.

Failed events can be resubmitted with trace to help you monitor the event processing. Tracing can be set for a service or a component, and it can be sent to a log or to the Common Event Infrastructure (CEI) server. When you view the failed event data on the Failed Event Details page, the default trace value `SCA.LOG.INFO;COMP.LOG.INFO` is shown for the event. If you resubmit the event with this default setting, no trace occurs when the session calls an SCA service or executes a component.

Some failed events also have an expiration. If a user has specified an expiration with the asynchronous call that sends the event, that data persists even if the event fails, and the expiration time appears in the **Resubmit Expiration Time** field on the Failed Event Details page. Expired failed events cannot be resubmitted successfully. To prevent a second failure, you can edit the expiration date for the event to ensure that it is not expired when it is resubmitted.

Security role required: You must be logged in as administrator or operator to perform this task.

1. Ensure that the failed event manager is open and that you have retrieved a list of the failed events on your system.
2. From the failed event manager's Search Results page, click the ID (found in the Message ID column) of the failed event whose data you want to edit.

   The Failed Event Details page opens.
3. If the event has an expiration date that causes it to expire before it is resubmitted, edit the expiration in the **Resubmit expiration time** field.

   The expiration time shown is local to the server. The value for this field must be formatted according to your specified locale. An example of the correct format for your locale is provided above the field.

4. If you want to enable tracing for the failed event, specify a new value in the **Trace Control** field. For detailed information about trace values, see the Monitoring topics in the WebSphere Process Server Information Center.
5. Do one of the following:
   - If the edited data is correct and you want to resubmit the event, click **Resubmit** to make the changes at a server level.
   - If you want to remove the changes you made, click **Undo local changes**.

   The edited failed event is resubmitted for processing and is removed from the failed event manager.

Editing business data in a failed event

The failed event manager provides a business data editor so you can edit the business data associated with a failed event before you resubmit it. For each failed event, the editor displays the associated business data in a hierarchical format; the navigation tree at the top of the table is updated as you navigate through the parameters to give you a clear picture of where you are in the hierarchy.

Business data can be encapsulated into a business object, or it can be simple data that is not part of a business object. A failed event can have both simple data and a business object associated with it.

You can edit only simple data types (for example, String, Long, Integer, Date, Boolean). If a data type is complex (for example, an array or a business object), you must navigate through the business data hierarchy until you reach the simple data types that make up the array or business object. Complex data is denoted by an ellipsis (`...`) in the Parameter Value column.

Important: Any edits you make to business data are saved locally. Changes are not made to the corresponding business data in the server until you resubmit the failed event.

Security role required: You must be logged in as administrator or operator to perform this task.

1. Ensure that the failed event manager is open and that you have retrieved a list of the failed events on your system.
2. From the failed event manager's Search Results page, click the ID (found in the Message ID column) of the failed event whose data you want to edit.

   The Failed Event Details page opens.
3. From the Failed Event Details page, click **Edit business data** to access the Business Data Editor collection page.

   This page displays a hierarchical view of all of the data associated with the failed event.
4. Navigate through the business data hierarchy by clicking on the name of each parameter (these appear as links in the Parameter Name column). When you have located the parameter whose value you want to edit, click its name.

   If the parameter has an editable value, the Business Data Editor page opens.
5. In the **Parameter value** field, specify the new value for the parameter.
6. Click **OK**.

   The change is saved locally and you are returned to the Business Data Editor collection page.

7. If you want to remove the changes you made, click **Undo local business data changes**.

   All of the edits are removed and the business data is returned to its original state.
8. If the edited business data is correct, click **Resubmit** to make the changes at a server level.

   The edited failed event is resubmitted for processing and is removed from the failed event manager.

Resubmitting failed events

If you want to try to execute the event again, you must resubmit it from the failed event manager. You can resubmit an event without changes, or you can edit the business data parameters before resubmitting it.

When a failed event is resubmitted, the processing resumes only for the failed branch, not for the entire event.

Tracing is available for resubmitted events to help monitor the event's processing. Tracing can be set for a service or a component, and its output can be sent to a log or to the Common Event Infrastructure (CEI) server.

You can also use the event's unique message ID to track its success or failure. If a resubmitted event fails again, it is returned to the failed event manager with its original message ID and an updated failure time.

Resubmitting an unchanged failed event

You can resubmit one or more unchanged failed events to be processed again. Processing resumes only for the failed branch, not for the entire event.

Security role required: You must be logged in as administrator or operator to perform this task.

1. Ensure that the failed event manager is open and that you have retrieved a list of the failed events on your system.
2. From the Search Results page, select the check box next to each failed event you want to resubmit.
3. Click **Resubmit**.

Each selected event is resubmitted for processing and is removed from the failed event manager.

Resubmitting a failed event with trace

You can monitor the resubmission of a failed event to determine whether it executes successfully. The failed event manager provides optional tracing for all failed events.

Tracing can be set for a service or a component, and it can be output to a log or to the Common Event Infrastructure (CEI) server. For detailed information about setting and viewing trace, see the Monitoring topics in the WebSphere Process Server Information Center.

Security role required: You must be logged in as administrator or operator to perform this task.

1. Ensure that the failed event manager is open and that you have retrieved a list of the failed events on your system.

2. From the Search Results page, select the check box next to each failed event you want to resubmit.
3. Click **Resubmit with trace**.
4. From the Resubmit with Trace page, specify the level of trace you want to use in the **Trace control** field.

   By default, the value is SCA.LOG.INFO;COMP.LOG.INFO. With this setting, no trace occurs when the session calls an SCA service or executes a component.
5. Click **OK** to resubmit the failed event and return to the Search Results page.

To view the trace log for a resubmitted event, open the corresponding component logger or use the CEI log viewer.

Deleting failed events

If you do not want to resubmit a failed event, or if you have failed events that have expired, use the failed event manager to delete them from the server. The failed event manager provides three options for deleting failed events.

Security role required: You must be logged in as administrator or operator to perform this task.

1. Ensure that the failed event manager is open and that you have retrieved a list of the failed events on your system.
2. From the failed event manager's Search Results page, do one of the following:
   - If you want to delete one or more specific failed events, select the check box next to each event and then click **Delete**.
   - If you want to delete only those failed events that have expired, click **Delete expired events**. Note that this deletes only the expired events in the current set of search results.
   - If you want to delete all failed events on the server, click **Clear all on server**.

Diagnosing problems

You can use problem determination to understand why your application, or server is not working.

The following topic can aid you in understanding why your enterprise application or server is not working, and they can help you resolve problems. Unlike performance tuning, which focuses on solving problems associated with slow processes and un-optimized performance, problem determination focuses on finding solutions to functional problems. For more information about diagnosing problems, see the **Diagnosing problems (using diagnosis tools)** section in the WebSphere Application Server for z/OS information center.

1. Investigate common problems organized according to functional areas within IBM WebSphere Process Server in Troubleshooting by function.
2. If you already have an error message and want to quickly look up its explanation and recommended response, look up the message by selecting **Reference** in the information center navigation and expanding **Messages**.
3. For help in knowing where to find error and warning messages, interpreting messages, and configuring log files, expand the **Diagnosing problems (using diagnosis tools)** section in the WebSphere Application Server for z/OS information center navigation and select **Working with message logs**.

4. Difficult problems can require the use of tracing, which exposes the low-level flow of control and interactions between components. For help in understanding and using traces, expand the **Diagnosing problems (using diagnosis tools)** section in the WebSphere Application Server for z/OS information center navigation and select **Working with trace**.
5. For help in adding log and trace capability to your own application, see Adding logging and tracing to your application.
6. For help in using settings or tools to help you diagnose the problem, expand **Diagnosing problems (using diagnosis tools)** section in the WebSphere Application Server for z/OS information center navigation and select **Working with troubleshooting tools**. Some of these tools are bundled with the product, and others are downloadable.
7. To find out how to look up documented problems, common mistakes, WebSphere Process Server prerequisites, and other problem-determination information on the WebSphere Process Server public Web site, or to obtain technical support from IBM, see Obtaining help from IBM.
8. The IBM Developer Kit and Runtime Environment, Java 2 Technology Edition, Version 1.4.1 Diagnostics Guide describes debugging techniques and the diagnostic tools that are available to help you solve problems with Java. It also gives guidance on how to submit problems to IBM. You can find the guide at IBM developer kits: Diagnosis documentation Web site.
9. For current information available from IBM Support on known problems and their resolution, see the IBM Support page.
10. IBM Support has documents that can save you time gathering information needed to resolve this problem. Before opening a PMR, see the WebSphere Process Server support page.

Troubleshooting by function

Depending on the specific problem that you have encountered, it may be necessary to troubleshoot by function. You can troubleshoot based on different issues that are common in installation, configuration, deployment, and administration.

Read the "Troubleshooting overview" on page 1 before you begin troubleshooting by function.

Troubleshooting the install

If the product installation and configuration are not successful, use this information to help you assess and correct the problems.

This topic assumes that you have attempted to install and or configure but have not been successful.

You should be aware that the installer program records multiple indicators of success in the following ways:

- Standard output messages

  Standard output messages display directly on the screen from which you run the installer script (zSMPInstall.sh). You can choose to *redirect* these messages to a file by using redirect symbol and a file name at the end of the command line. For example, adding the syntax `>run.log` to the end of the install command redirect the standard output messages to the file named **run.log** in the present working directory.
- Log file messages

Log messages for installation are written to the **zSMPInstall.log** file in the run-time directory. Standard location for this file is /WebSphere/V6R0M0/AppServer/logs/wbi/zSMPInstall.log.

Log messages for configuration are written to the**zWPSConfig.log** or the **zWESBConfig.log** file in the run-time directory. Standard locations for these files are /WebSphere/V6R0M0/AppServer/logs/wbi/zWPSConfig.log and /WebSphere/V6R0M0/AppServer/logs/wbi/zWESBConfig.log respectively.

- Trace file messages

  The installation trace messages are written to the **zSMPInstall.trace** file in the run-time directory. Standard location for this file is /WebSphere/V6R0M0/AppServer/logs/wbi/zSMPInstall.trace.

  Trace messages for configuration are written to the**zWPSConfig.trace** or the **zWESBConfig.trace** file in the run-time directory. Standard locations for these files are /WebSphere/V6R0M0/AppServer/logs/wbi/zWPSConfig.trace and /WebSphere/V6R0M0/AppServer/logs/wbi/zWESBConfig.trace respectively.

Make sure that you have installed and configured WebSphere Application Server for z/OS successfully. Refer to the installation troubleshooting information in the WebSphere Application Server for z/OS information center if you are having trouble installing and configuring WebSphere Application Server for z/OS.

For current information available from IBM Support on known problems and their resolution, see the WebSphere Process Server Support page.

1. Review the messages from Standard Out. There should be no error messages displayed. The standard output messages display on either on the screen from which you ran the install command or in a file that you specified by using the redirect (">") symbol on the command line.

   The following is an example of a successful execution of the install script with the **-install** option:

   ```
   parsing command arguments...
   parsing arguments complete
   setting up configuration...
   runtimeRootDirName is: /WebSphere/V6R0M0/AppServer
   WAS_HOME is: /WebSphere/V6R0M0/AppServer
   WBI_HOME is: /WebSphere/V6R0M0/AppServer
   set up configuration complete
   creating the symbolic links...
   invokeSymLink
   creation of symbolic links complete
   doing post install file updates...
   post install updates complete
   running Configuration Manager update...
   Configuration Manager update complete
   augmenting profile(s)...
   augmenting profile(s) complete
   ```

   Error messages indicate an unsuccessful install. Some errors as displayed in Standard Out will be self explanatory and can be easily corrected. If the install completed to the point where the log and trace files were created, continue with the following steps.

2. Review the zSMPInstall.log (ASCII) file in the run-time directory. Standard location for this file is /WebSphere/V6R0M0/AppServer/logs/wbi/zSMPInstall.log.

   Verify the response file values, including any -Z command line overrides, are correct.

   If there are error messages, try to determine which of the following tasks were in progress when the error occurred.

- create symbolic links
- create post install file
- update codebase permissions
- update Configuration Manager
- augment profile(s)

Knowing the task that was in progress at the time of an error will help you assess the information in the trace file.

3. Review the zSMPInstall.trace (ASCII) file in the run-time directory. Standard location for this file is /WebSphere/V6R0M0/AppServer/logs/wbi/zSMPInstall.trace.

   On a successful install, only informational messages, for example messages that have a suffix of CWPIZ0044**I** should be listed in the trace file.

   If warning messages (messages with a suffix of **W**) or error messages (messages with a suffix of **E**) are listed in the trace, further review is required.

   If the warning or error occurred during the create symbolic links, create post install file, or update codebase permissions tasks, the trace message should contain information that will help you diagnose and correct the problem.

   If the warning or error occurred in the update Configuration Manager task, proceed to the next step.

   If the warning or error occurred in the augment profile(s) task, proceed to step 5.

4. Review the actions of the Update Configuration Manager task. These actions are recorded by writing to a log file (ASCII). The log file name is `cmtInstall.log`.

   Standard location for this file is in directory /WebSphere/V6R0M0/AppServer/logs/wbi.

   Search this Configuration Manager log for `>SEVERE<` or `>WARNING<` level messages to determine overall error in processing.

   Each Ant script run from the install directory writes to it's own log (ASCII).

   Default name for the install directory that contains the ant scripts is:/WebSphere/V6R0M0/AppServer/properties/version/install.wbi/6.0.0.0/config/full/install.

   The resulting ant logs are written to the product log directory. The default name for this directory is /WebSphere/V6R0M0/AppServer/logs/wbi. Ant logs include the following (review these logs to determine errors in processing) :

   - 90SConfigNoProfileFirstStepsWBI.ant.log
   - 90SConfigureWSProfileForWBI.ant.log
   - 90SConfigWBIMigrationScript.ant.log
   - 90SInstallCEI.ant.log
   - 90SUpdateJavaOptions.ant.log
   - 98SDeployBPCAdminConsolePlugins.ant.log
   - 98SDeployServerAdminConsolePlugins.ant.log
   - 99SDeployCoreAdminConsolePlugins.ant.log

   If there were no problems a **BUILD SUCCESSFUL** message displays at the end of the file.

5. Review the actions of the WebSphere Application Server profile augment task. The augment profile(s) task records it's actions by writing to a log file (ASCII).

The log file name has the name **wasprofile_augment_default.log**. Standard location for this file is in the directory /WebSphere/V6R0M0/AppServer/logs/wasprofile.

Search this Profile Augmentation log for `>SEVERE<` or `>WARNING<` level messages to determine overall error in processing.

Individual ant action logs are located in /WebSphere/V6R0M0/AppServer/profiles/default/logs.

After troubleshooting the problems that caused the installation errors, and after you have run the installation script successfully, you should perform the following steps:

1. Start the application server.
2. Launch the Administrative Console and verify that the product components have been installed.

   For example, by installing WebSphere Process Server successfully, you should see evidence of Process Choreographer under the enterprise applications with names that start with `BPEContainer`, `BPCExplorer`, and `TaskContainer`.

Message reference for WebSphere Process Server for z/OS installation and configuration

The message reference for WebSphere Process Server for z/OS lists the message codes that may display while running the install script or when running the configuration script.

About the installation error messages

Use the data in the Explanation and User response fields to troubleshoot the WebSphere Process Server for z/OS message codes.

The message code displays as CWPIZyyyyz, where:

- CWPIZ = The WebSphere Process Server for z/OS message prefix
- yyyy = The numeric identifier assigned to the number
- z = Descriptor (E, I or W) for the type of message, where:
  - E = Error message
  - I = Informational message
  - W = Warning message

The WebSphere Process Server for z/OS installation error messages are documented in the information center under **Reference > Messages >CWPIZ**.

The WebSphere Process Server for z/OS installation error messages are written to the zSMPInstall.log file in the run-time directory. The standard default location for the log file is /WebSphere/V6R0M0/AppServer/logs/wbi/zSMPInstall.log.

The WebSphere Process Server for z/OS configuration error messages are written to the zWPSConfig.log file and the zWESBConfig.log file in the run-time directory. The standard default location for these log files are /WebSphere/V6R0M0/AppServer/logs/wbi/zWESBConfig.log and /WebSphere/V6R0M0/AppServer/logs/wbi/zWPSConfig.log respectively.

Log files

Various log files are created during the product install and configuration process.

Purpose

Consult the applicable logs if problems occur during the product install and configuration process.

Standard out messages redirected to log file

Standard out messages report high-level actions such as the starting and completing of the action that verifies the command line arguments.

By default, these messages display directly on the screen from which you run the product install script. However, you can *redirect* these messages to a file by using redirect symbol and a file name at the end of the command line. For example, specifying `>run.log` at the end of the install command redirects the standard out messages to a file named `run.log` in the present working directory.

Standard out messages also report severe errors that occur prior to the Log and Trace File being opened. For instance, the following message block is display if the required keyword **-response** was not included in the install command.

```
parsing command arguments...
CWPIZ0101E -response keyword and value not specified on zSMPInstall.sh command line.
com.ibm.ws390.installer.InstallFailureException: -response keyword and value not specified
CWPIZ0017E  install task failed.
```

Log file

These messages include the messages written to Standard Out, but provide additional information and settings that were used by the installer program.

For instance, the following log portion shows the response properties and their values being used. It also shows the source and target directories being used during the creation of the symbolic links.

```
response property: profilePath=/WebSphere/V6R0M0/AppServer/profiles/default
response property: nodeName=SY1
response property: scaSecurityPassword=ibmuser
response property: dbType=Cloudscape
response property: ceiSampleJmsUser=ibmuser
response property: scaSecurityUserId=ibmuser
response property: configureScaSecurity=true
response property: mqUser=ibmuser
response property: serverName=server1
response property: adminBFMGroups=ibmuser
response property: profileName=default
response property: dbCreateNew=true
response property: ceiSampleJmsPwd=ibmuser
response property: cellName=SY1
response property: dbLocation=/WebSphere/V6R0M0/AppServer/cloudscape/databases/WBIDB
response property: mqPwd=ibmuser
response property: was.install.root=/WebSphere/V6R0M0/AppServer
response property: augment=
response property: ceiDbProduct=CLOUDSCAPE_V51_1
response property: wbi.install.root=/WebSphere/V6R0M0/AppServer
response property: ceiSampleServerName=server1
response property: templatePath=/WebSphere/V6R0M0/AppServer/profileTemplates/default.*
response property: dbName=WBIDB
set up configuration complete
creating the symbolic links...
Source=/usr/lpp/zWPS/V6R0M0

Target=/WebSphere/V6R0M0/AppServer
creation of symbolic links complete
```

```
doing post install file updates...
post install updates complete
running Configuration Manager update...
Configuration Manager update complete
```

Trace file

These messages are written to the **zSMPInstall.trace** file in the run-time directory.

The example below shows some preliminary informational messages and then a **CWPIZ0322E** error indicating that the required profileName property was not found in the response file that the user specified on the install script command line (nor was provided as a -Z override).

The subsequent **CWPIZ0017E** error message is a general message indicating the final outcome of the zSMPInstall.sh run.

```
[8/16/05 17:00:45:380 EDT] 0000000a ManagerAdmin  I   BBOO0222I:
TRAS0017I: The startup trace state is *=info.

[8/16/05 17:00:48:230 EDT] 0000000a WPSInstaller  I   BBOO0222I:
CWPIZ0044I Begin install task.

[8/16/05 17:00:48:273 EDT] 0000000a WPSInstaller  I   BBOO0222I:
CWPIZ0117I WPS installer log data will be written to
/WebSphere/V6R0M0/AppServer/logs/wbi/zSMPInstall.log.

[8/16/05 17:00:48:282 EDT] 0000000a WPSInstaller  I   BBOO0222I:
CWPIZ0024I WPS installer trace data will be written to
/WebSphere/V6R0M0/AppServer/logs/wbi/zSMPInstall.trace.

[8/16/05 17:00:48:292 EDT] 0000000a WPSInstaller  I   BBOO0222I:
CWPIZ0014I Trace specification is "*=all=disabled".

[8/16/05 17:00:48:298 EDT] 0000000a WPSInstaller  I   BBOO0222I:
CWPIZ0045I WPS SMP/E root directory is /zrockuser/wbi/Install.

[8/16/05 17:00:48:302 EDT] 0000000a WPSInstaller  I   BBOO0222I:
CWPIZ0052I WAS SMP/E root directory is /web/usr/lpp/zWebSphere/V6R0.

[8/16/05 17:00:48:307 EDT] 0000000a WPSInstaller  I   BBOO0222I:
CWPIZ0046I Destination application server root directory is
/WebSphere/V6R0M0/AppServer.

[8/16/05 17:00:48:314 EDT] 0000000a WPSInstaller  E   BBOO0220E:
CWPIZ0322E profileName property not specified in Response File.

[8/16/05 17:00:48:318 EDT] 0000000a WPSInstaller  E   BBOO0220E:
CWPIZ0017E install task failed.

A trace file from a zSMPInstall.sh executed with the trace specification argument
set to "*=all=enabled" provides additional debugging information. It may contain
information that is meaningful only to a developer. The following is a partial
trace using "*=all=enabled":

************ Start Display Current Environment ************
Host Operating System is z/OS, version 01.04.00
Java version = J2RE 1.4.2 IBM z/OS Persistent Reusable VM build cm142-20050623
(JIT enabled: jitc), Java
Compiler = jitc, Java VM name = Classic VM
was.install.root = /WebSphere/V6R0M0/AppServer
user.install.root = /WebSphere/V6R0M0/AppServer/profiles/default
Java Home = /web/usr/lpp/zWebSphere/V6R0/java/J1.4
ws.ext.dirs = /WebSphere/V6R0M0/AppServer/java/lib:/WebSphere/V6R0M0/AppServer/java/lib/
ext:/WebSphere/V6R0M0/AppServer/classes:/WebSphere/V6R0M0/AppServer/lib:/WebSphere/V6R0M0/AppServer/
installedChannels:/WebSphere/V6R0M0/AppServer/lib/ext:/WebSphere/V6R0M0/AppServer/deploytool/itp
/plugins/com.ibm.etools.ejbdeploy/runtime:/WebSphere/V6R0M0/AppServer/MQSeries/pubsubroot/lib
Classpath = /zrockuser/bbzconfig.jar:/WebSphere/V6R0M0/AppServer/lib/admin.jar:/WebSphere/V6R0M0
/AppServer/lib/ant.jar:/WebSphere/V6R0M0/AppServer/lib/bootstrapws390.jar:/WebSphere/V6R0M0
/AppServer/lib/bootstrap.jar:/WebSphere/V6R0M0/AppServer/lib/configmanager.jar:/WebSphere
/V6R0M0/AppServer/lib/emf.jar:/WebSphere/V6R0M0/AppServer/lib/ras.jar:/WebSphere/V6R0M0
/AppServer/lib/runtimefw.jar:/WebSphere/V6R0M0/AppServer/lib/utils.jar:/WebSphere/V6R0M0
/AppServer/lib/wasjmx.jar:/WebSphere/V6R0M0/AppServer/lib/wasproduct.jar:/WebSphere/V6R0M0
/AppServer/lib/wccm_base.jar:/WebSphere/V6R0M0/AppServer/lib/wjmxapp.jar:/WebSphere/V6R0M0
```

```
/AppServer/lib/wsanttasks.jar:/WebSphere/V6R0M0/AppServer/lib/wsexception.jar:/WebSphere
/V6R0M0/AppServer/lib/wsprofile.jar:/WebSphere/V6R0M0/AppServer/profiles/default/properties:
/WebSphere/V6R0M0/AppServer/properties:/WebSphere/V6R0M0/AppServer/lib/bootstrap.jar:/WebSphere
/V6R0M0/AppServer/lib/j2ee.jar:/WebSphere/V6R0M0/AppServer/lib/lmproxy.jar:/WebSphere/V6R0M0
/AppServer/lib/urlprotocols.jar:/WebSphere/V6R0M0/AppServer/lib/bootstrapws390.jar
Java Library path = /web/usr/lpp/zWebSphere/V6R0/java/J1.4/bin/classic/libjvm.so:/web/usr
/lpp/zWebSphere/V6R0/java/J1.4/bin/classic:/web/usr/lpp/zWebSphere/V6R0/java/J1.4/bin/:
/WebSphere/V6R0M0/AppServer/lib:/WebSphere/V6R0M0/AppServer/lib:/WebSphere/V6R0M0/AppServer
/MQSeries/pubsubroot/lib:/mqm/java/bin:/mqm/java/lib:/db2810/lib:/db2beta/db2710/lib:
/web/usr/lpp/WebSphere/lib:/lib:/usr/lib:/java/J1.3/bin:/java/J1.4/bin:/java/J5.0/bin:
/staf/lib:/WebSphere/V6R0M0/AppServer/lib:/usr/lib
Current trace specification = *=all
************* End Display Current Environment *************
[10/3/05 16:35:05:709 EDT] 0000000a ManagerAdmin  I   BBOO0222I: TRAS0017I:
The startup trace state is *=all.
[10/3/05 16:35:08:638 EDT] 0000000a WPSInstaller  >  setup Entry
                                /web/usr/wbi/zWebSphere/V6R0
                                APPSERVER
                                zSMPInstall.sh
                                -smproot
                                /web/usr/wbi/zWPS/V6R0
                                -runtime
                                /WebSphere/V6R0M0/AppServer
                                -response
                                /web/usr/wbi/zWPS/V6R0/zos.config/standAloneProfile.rsp
                                -prereqonly
                                -trace
                                *=all=enabled
[10/3/05 16:35:08:640 EDT] 0000000a WPSInstaller  3   logFileDeleted
                                true
[10/3/05 16:35:08:660 EDT] 0000000a WPSInstaller  I   BBOO0222I: CWPIZ0044I:
Begin install task.
[10/3/05 16:35:08:702 EDT] 0000000a WPSInstaller  I   BBOO0222I: CWPIZ0117I:
WPS installer log data will be written to /WebSphere/V6R0M0/AppServer/logs/wbi/zSMPInstall.log.
[10/3/05 16:35:08:712 EDT] 0000000a WPSInstaller  I   BBOO0222I: CWPIZ0024I:
WPS installer trace data will be written to /WebSphere/V6R0M0/AppServer/logs/wbi/zSMPInstall.trace.
[10/3/05 16:35:08:722 EDT] 0000000a WPSInstaller  I   BBOO0222I: CWPIZ0014I:
Trace specification is "*=all=enabled".
[10/3/05 16:35:08:726 EDT] 0000000a WPSInstaller  I   BBOO0222I: CWPIZ0052I:
WAS SMP/E root directory is /web/usr/lpp/zWebSphere/V6R0.
[10/3/05 16:35:08:730 EDT] 0000000a WPSInstaller  >  checkPathName Entry
                                /web/usr/wbi/zWPS/V6R0
[10/3/05 16:35:08:731 EDT] 0000000a WPSInstaller  <  checkPathName Exit
[10/3/05 16:35:08:732 EDT] 0000000a WPSInstaller  I   BBOO0222I: CWPIZ0045I:
WPS SMP/E root directory is /web/usr/wbi/zWPS/V6R0.
[10/3/05 16:35:08:736 EDT] 0000000a Symlink       >  isSymlink Entry
                                /web/usr/wbi/zWPS/V6R0
[10/3/05 16:35:08:737 EDT] 0000000a Symlink       3   absolute path
                                /web/usr/wbi/zWPS/V6R0
[10/3/05 16:35:08:737 EDT] 0000000a Symlink       3   canonical path
                                /web/usr/wbi/zWPS/V6R0
[10/3/05 16:35:08:738 EDT] 0000000a Symlink       <  isSymlink Exit
                                false
[10/3/05 16:35:08:738 EDT] 0000000a WPSInstaller  I   BBOO0222I: CWPIZ0046I:
Destination application server root directory is /WebSphere/V6R0M0/AppServer.
[10/3/05 16:35:08:744 EDT] 0000000a WPSInstaller  I   BBOO0222I: CWPIZ0247I:
Response file is /web/usr/wbi/zWPS/V6R0/zos.config/sample.rsp.
[10/3/05 16:35:08:764 EDT] 0000000a WPSInstaller  3   response property
                                profilePath=/WebSphere/V6R0M0/AppServer/profiles/default
[10/3/05 16:35:08:765 EDT] 0000000a WPSInstaller  3   response property
                                nodeName=SY1
```

Troubleshooting a failed deployment

This topic describes the steps to take to determine the cause of a problem when deploying an application. It also presents some possible solutions.

This topic assumes the following things:

- You have a basic understanding of debugging a module.
- Logging and tracing is active while the module is being deployed.

The task of troubleshooting a deployment begins after you receive notification of an error. There are various symptoms of a failed deployment that you have to inspect before taking action.

1. Determine if the application installation failed.

   Examine the system.out file for messages that specify the cause of failure. Some of the reasons an application might not install include the following:

   - You are attempting to install an application on multiple servers in the same Network Deployment cell.
   - An application has the same name as an existing module on the Network Deployment cell to which you are installing the application.
   - You are attempting to deploy J2EE modules within an EAR file to different target servers.

   Important: If the installation has failed and the application contains services, you must remove any SIBus destinations or J2C activation specifications created prior to the failure before attempting to reinstall the application. The simplest way to remove these artifacts is to click **Save > Discard all** after the failure. If you inadvertently save the changes, you must manually remove the SIBus destinations and J2C activation specifications (see Deleting SIBus destinations and Deleting J2C activation specifications in the Administering section).

2. If the application is installed correctly, examine it to determine if it started.

   If the application is not running, the failure occurred when the server attempted to initiate the resources for the application.

   a. Examine the system.out file for messages that will direct you on how to proceed.
   b. Determine if the resources are started.

      Resources that are not started prevent an application from running to protect against lost information. The reasons for a resource not starting include:

      - Bindings are specified incorrectly
      - Resources are not configured correctly
      - Resources are not included in the resource archive (RAR) file
      - Web resources not included in the Web services archive (WAR) file

   c. Determine if any components are missing.

      The reason for missing a component is an incorrectly built enterprise archive (EAR) file. Make sure that the all of the components required by the module are in the correct folders on the test system on which you built the Java archive (JAR) file. **Developing and developing modules > Preparing to deploy to a server** contains additional information.

3. Examine the application to see if there is information flowing through it.

   Even a running application can fail to process information. Reasons for this are similar to those mentioned in step 2b.

   a. Determine if the applications uses any services contained in another application. Make sure that the other application is installed and running.
   b. Determine if the import and export bindings for all services contained in other applications the failing application uses are configured correctly. Use the administrative console to examine and correct the bindings.

4. Correct the problem and restart the application.

Deleting J2C activation specifications

The system builds J2C applications specifications when installing an application that contains services. There are occasions when you must delete these specifications before reinstalling the application.

If you are deleting the specification because of a failed application installation, make sure the module in the Java Naming and Directory Interface (JNDI) name matches the name of the module that failed to install. The second part of the JNDI name is the name of the module that implemented the destination. For example in sca/SimpleBOCrsmA/ActivationSpec, **SimpleBOCrsmA** is the module name.

Delete J2C activation specifications when you inadvertently saved a configuration after installing an application that contains services and do not require the specifications.

1. Locate the activation specification to delete.

   The specifications are contained in the resource adapter panel. Navigate to this panel by clicking **Resources > Resource adapters**.

   a. Locate the **Platform Messaging Component SPI Resource Adapter.**

      To locate this adapter, you must be at the **node** scope for a stand alone server or at the **server** scope in a Network Deployment environment.
2. Display the J2C activation specifications associated with the Platform Messaging Component SPI Resource Adapter.

   Click on the resource adapter name and the next panel displays the associated specifications.
3. Delete all of the specifications with a **JNDI Name** that matches the module name that you are deleting.

   a. Click the check box next to the appropriate specifications.

   b. Click **Delete.**

The system removes selected specifications from the display.

Save the changes.

Deleting SIBus destinations

SIBus destinations are the connections that make services available to applications. There will be times that you will have to remove destinations.

If you are deleting the destination because of a failed application installation, make sure the module in the destination name matches the name of the module that failed to install. The second part of the destination is the name of the module that implemented the destination. For example in sca/SimpleBOCrsmA/component/test/sca/cros/simple/cust/Customer, **SimpleBOCrsmA** is the module name.

Delete SIBus destinations when you inadvertently saved a configuration after installing an application that contains services and you no longer need the destinations.

Note: This task deletes the destination from the SCA system bus only. You must remove the entries from the application bus also before reinstalling an application that contains services (see Deleting J2C activation specifications in the Administering section of this information center.

1. Log into the administrative console.
2. Display the destinations on the SCA system bus.

Navigate to the panel by clicking **Service integration > buses**

3. Select the SCA system bus destinations.

   In the display, click on **SCA.SYSTEM.*cellname*.Bus**, where *cellname* is the name of the cell that contains the module with the destinations you are deleting.

4. Delete the destinations that contain a module name that matches the module that you are removing.

   a. Click on the check box next to the pertinent destinations.

   b. Click **Delete.**

The panel displays only the remaining destinations.

Delete the J2C activation specifications related to the module that created these destinations.

Troubleshooting WebSphere Process Server administration

Troubleshooting is the process of finding and eliminating the cause of a problem. This group of topics helps you identify and resolve problems that can occur during typical administration tasks.

Troubleshooting the failed event manager

This topic discusses problems that you can encounter while using the failed event manager.

Note: This topic does not discuss how to use the failed event manager to find, modify, resubmit, or delete failed events on the system. For information about managing failed events, see *Managing WebSphere Process Server failed events* in the information center.

Select the problem you are experiencing from the table below:

Problem	Refer to the following
I am having trouble with reduced performance during an advanced search	"Advanced search feature not optimized"
I am having trouble entering values in the Search page's **By Date** tab	"Values in the By Date tab automatically change to default if entered incorrectly"
I am having trouble deleting expired events	"Executing the Delete Expired Events function appears to suspend the failed event manager" on page 24

Advanced search feature not optimized

The failed event manager's advanced search feature is not optimized. Therefore, you may experience reduced performance when using the Advanced search tab with a large set of failed events.

Values in the By Date tab automatically change to default if entered incorrectly

The Search page's **By Date** tab contains two fields: **From Date** and **By Date**. Both fields are required. The values are locale-dependendent, and they must be formatted exactly as shown in the example above the field. Any inconsistency in the value's format (for example, including four digits in the year instead of 2, or

omitting the time) will cause the failed event manager to issue the following warning and substitute a default value in the field:

```
CWMAN0017E: The date entered could not be parsed correctly:
your_incorrectly_formatted_date. Date: default_date is being used.
```

The default value of the **From Date** field is defined as `January 1, 1970, 00:00:00 GMT`.

Important: The actual default value shown in your failed event manager implementation will vary depending on your locale and time zone. For example, the From Date field defaults to `12/31/69 7:00 PM` for a machine with an en_US locale in the Eastern Standard Time (EST) time zone.

The default value for the **By Date** field is always the current date and time, formatted for your locale and time zone.

To avoid this problem, always enter your dates and times carefully, following the example provided above each field.

Executing the Delete Expired Events function appears to suspend the failed event manager

If you use the Delete Expired Events button in situations where there are many failed events in the current search results, or where those events contain a large amount of business data, the failed event manager can appear to be suspended indefinitely.

In this situation, the failed event manager is not actually suspended; it is working through the large data set, and will refresh the results set as soon as the command completes.

Troubleshooting the Business Process Choreographer configuration

Use this topic to solve problems relating to the configuration of the business process container, or the human task container.

The purpose of this section is to aid you in understanding why the configuration of your business process container or human task container is not working as expected and to help you resolve the problem. The following tasks focus on problem determination and finding solutions to problems that might occur during the configuration of the business process container or the human task container.

Business Process Choreographer log files:

This describes where to find the log files for your Business Process Choreographer configuration.

Profile creation

The profile actions for Business Process Choreographer write to the bpcaugment.log file in the logs directory.

If you select the sample configuration option in the profile wizard, it invokes the bpeconfig.jacl script, and actions are logged in the bpeconfig.log file in the logs directory.

Administrative scripts

All of the Business Process Choreographer scripts that are run using wsadmin are logged in the wsadmin.traceout file. However, because this file is overwritten each time that wsadmin is invoked, make sure that you save this log file before invoking wsadmin again.

Configuration-related scripts

The script files bpeconfig.jacl, taskconfig.jacl, clientconfig.jacl, and bpeunconfig.jacl write their log files in the logs directory with the names bpeconfig.log, taskconfig.log, clientconfig.log, and bpeunconfig.log. Also check the wsadmin.traceout file.

Administrative utility scripts

The administrative scripts in the util subdirectory of the ProcessChoreographer directory do not write their own log files. Check the wsadmin.traceout file and the application server log files.

Configuration checker

The bpecheck.jacl script file, found in the ProcessChoreographer directory can be used to check for common configuration problems. The results are written to the bpecheck.log file in the logs directory.

Enabling tracing for Business Process Choreographer:

This describes what to do before contacting support.

Enabling tracing

Business Process Choreographer tracing uses the standard WebSphere Process Server tracing mechanism. This must be enabled in the normal way.

The trace specification is as follows:

```
com.ibm.bpe.*=all=enabled:com.ibm.ws.staffsupport.*=all=enabled
```

where `com.ibm.bpe` traces business processes and most aspects of human tasks. The remaining aspects of human tasks, the staff plug-ins, are traced by `com.ibm.ws.staffsupport`.

What to send support

After enabling tracing, recreate your problem scenario then provide the following files:

- SystemOut.log
- SystemErr.log
- trace.log

These files are located in *install_root*`profiles/`*profile_name*`/logs/`

The task container application fails to start:

Startup bean named ejb/htm/TaskContainerStartUpBean forced the application to stop.

Symptom

The following errors are written to the SystemOut.log file:

```
WSVR0037I: Starting EJB jar: taskejb.jar
NMSV0605W: A Reference object looked up from the context "java:"
with the name "comp/env/scheduler/DefaultUserCalendarHome"
was sent to the JNDI Naming Manager and an exception resulted.
Reference data follows:
Reference Factory Class Name: com.ibm.ws.naming.util.IndirectJndiLookupObjectFactory
Reference Factory Class Location URLs:
Reference Class Name: java.lang.Object
Type: JndiLookupInfo
Content: JndiLookupInfo:
jndiName="com/ibm/websphere/scheduler/calendar/DefaultUserCalendarHome";
providerURL=""; initialContextFactory=""
:
StartBeanInfo E STUP0005E: Startup bean named ejb/htm/TaskContainerStartUpBean
forced application to stop.
ApplicationMg W WSVR0101W: An error occurred starting, TaskContainer_utxtlb10Node01_server1
ApplicationMg A WSVR0217I: Stopping application: TaskContainer_utxtlb10Node01_server1
EJBContainerI I WSVR0041I: Stopping EJB jar: taskejb.jar
```

Reason

You get this error if the SchedulerCalendars application is not available when the TaskContainer application starts.

Resolution

Either install the SchedulerCalendars application manually, or if it is already installed, add a new target mapping for it.

In a default profile, the SchedulerCalendars application is available automatically as a WebSphere system application. However, in a custom profile it is not available automatically.

The bpeconfig.jacl script tries to install the SchedulerCalendars application, but this is not always possible.

If you use the administrative console install wizard to configure Business Process Choreographer in an ND environment, you must install the SchedulerCalendars application manually.

Troubleshooting the Business Process Choreographer database and data source:

Use this task to solve problems with the Business Process Choreographer database and data source.

Both the business process container and the human-task container need a database. Without the database, enterprise applications that contain business processes and human tasks will not work.

- If you are using DB2®:
  - If you use the DB2 Universal JDBC driver type 4 and get DB2 internal errors such as `"com.ibm.db2.jcc.a.re: XAER_RMERR : The DDM parameter value is not supported. DDM parameter code point having unsupported value :`

0x113f DB2ConnectionCorrelator: NF000001.PA0C.051117223022" when you test the connection on the Business Process Choreographer data source or when the server starts up, perform the following actions:

1. Check the class path settings for the data source. In a default setup the WebSphere variable ${DB2UNIVERSAL_JDBC_DRIVER_PATH} can point to the WebSphere Process Server embedded DB2 Universal JDBC driver which is found in the universalDriver_wbi directory.
2. The version of the driver might not be compatible with your DB2 server version. Make sure that you use the original db2jcc.jar files from your database installation, and not the WebSphere Process Server embedded DB2 Universal JDBC driver. If required, changed the value of the WebSphere variable ${DB2UNIVERSAL_JDBC_DRIVER_PATH} to point to your original db2jcc.jar file.
3. Restart the server.

– If the db2diag.log file of your DB2 instance contains messages like ADM5503E as illustrated below:

```
2004-06-25-15.53.42.078000   Instance:DB2   Node:000
PID:2352(db2syscs.exe)   TID:4360   Appid:*LOCAL.DB2.027785142343
data management  sqldEscalateLocks Probe:4   Database:BPEDB

ADM5503E  The escalation of "10" locks on table "GRAALFS .ACTIVITY_INSTANCE_T"
          to lock intent "X" has failed.  The SQLCODE is "-911"
```

Increase the LOCKLIST value. For example to set the value to 500, enter the following DB2 command:

```
db2 UPDATE DB CFG FOR BPEDB USING LOCKLIST 500
```

This can improve performance significantly.

– To avoid deadlocks, make sure your database system is configured to use sufficient memory, especially for the bufferpool. For DB2, use the DB2 Configuration Advisor to determine reasonable values for your configuration.
– If you get errors mentioning the data source implementation class COM.ibm.db2.jdbc.DB2XADataSource:
  - Check that all WebSphere environment variables that are used in the server.policy file, have been set correctly. For example, DB2_INSTALL_ROOT and DB2_JDBC_DRIVER_PATH.
  - Check that the class path definition for your JDBC provider is correct, and that it does not have two entries.
  - Check that the component-managed authentication alias is set to *cellName*/BPEAuthDataAlias*dbType_Scope*. Where, *cellName* is the name of the cell, *dbType* is the database type, and *Scope* is the scope of the definition.
– If you are using a remote DB2 for z/OS® database, and you get SQL code 30090N in the SystemOut.log file when the application server attempts to start the first XA transaction with the remote database, perform the following:
  - Make sure that the instance configuration variable SPM_NAME points to the local server with a host name not longer than eight characters. If the host name is longer than eight characters, define a short alias in the etc/hosts file.
  - Otherwise, you might have invalid syncpoint manager log entries in the sqllib/spmlog directory. Try clearing the entries in the sqllib/spmlog directory and restart.
  - Consider increasing the value of SPM_LOG_FILE_SZ.

• If you are using Cloudscape™:

- If you get a “Too many open files” error on Linux or UNIX systems, increase the number of file handles available, for example, to 4000 or more. For more information about how to increase the number of available file handles, refer to the documentation for your operating system.
- If you get a ″Java class not found″ exception when trying to invoke Cloudscape tools, make sure that you have set up the Java environment, and that your `classpath` environment variable includes the following JAR files:
  - `db2j.jar`
  - `db2jtools.jar`
  - `db2jcc.jar`
  - `db2jcview.jar`
- If you cannot connect to your Cloudscape database using the Cloudscape tools (like ij or cview) and you get the following exception:

```
ERROR XJ040: Failed to start database 'c:\WebSphere\AppServer\profiles\profile_name\databases\BPEDB',
  see the next exception for details.
ERROR XSDB6: Another instance of Cloudscape may have already booted the database
  c:\WebSphere\AppServer\profiles\profile_name\databases\BPEDB.
```

  you must stop your WebSphere Application Server before using these tools because only one application can access the Cloudscape database at a time.

- If you get a database error when installing an enterprise application that contains a business process or human task. When an enterprise application is installed, any process templates and task templates are written into the Business Process Choreographer database. Make sure that the database system used by the business process container is running and accessible.
- If you have problems using national characters. Make sure that your database was created with support for Unicode character sets.
- If tables or views cannot be found in the database. When configuring the authentication alias for the data source, you must specify the same user ID that was used to create the database tables (or to run the scripts to create them).

Troubleshooting the Business Process Choreographer queue manager and JMS provider:

Use this to solve problems with Business Process Choreographer relating to queues, the queue manager, and the Java Message Service (JMS) provider.

Business Process Choreographer uses reliable messaging. The messaging service can either be the JMS provider embedded in WebSphere

, or the separately installed product WebSphere

MQ. Here are some solutions to possible problems:

Troubleshooting business process and human tasks

Use this topic to solve problems relating to business processes and human tasks.

The following tasks focus on troubleshooting problems that can happen during the execution of a business process or task.

Troubleshooting the installation of business process and human task applications:

When installing an application containing business processes, human tasks, or both in an ND environment, you get an exception in the deployment manager SystemErr.log file

Symptom

When installing an application containing business processes, human tasks, or both in an ND environment, you find the following exception in the deployment manager SystemErr.log file:

```
SystemErr R com.ibm.ws.management.commands.sib.SIBAdminCommandException:
CWSJA0012E: Messaging engine not found.
at com.ibm.ws.management.commands.sib.SIBAdminCommandHelper.createDestination
 (SIBAdminCommandHelper.java:787)
at com.ibm.ws.management.commands.sib.CreateSIBDestinationCommand.afterStepsExecuted
 (CreateSIBDestinationCommand.java:459)
at com.ibm.websphere.management.cmdframework.provider.AbstractTaskCommand.execute
 (AbstractTaskCommand.java:547)
at com.ibm.ws.sca.internal.deployment.sib.SIBAdminHelper.call(SIBAdminHelper.java:136)
at com.ibm.ws.sca.internal.deployment.sib.SIBAdminHelper.createSIBDestination
 (SIBAdminHelper.java:112)
at com.ibm.ws.sca.internal.deployment.sib.SIBAdmin.createDestination(SIBAdmin.java:327)
at com.ibm.ws.sca.internal.deployment.sib.SIBDestinationTask.createDestination
 (SIBDestinationTask.java:263)
at com.ibm.ws.sca.internal.deployment.sib.SIBDestinationTask.preInstallModule
 (SIBDestinationTask.java:71)
at com.ibm.ws.sca.internal.deployment.SCATaskBase.installModule(SCATaskBase.java:57)
at com.ibm.ws.sca.internal.deployment.sib.SIBDestinationTask.processArtifacts
 (SIBDestinationTask.java:228)
at com.ibm.ws.sca.internal.deployment.sib.SIBDestinationTask.install
 (SIBDestinationTask.java:287)
at com.ibm.ws.sca.internal.deployment.SCAInstallTask.performInstallTasks
 (SCAInstallTask.java:116)
at com.ibm.ws.sca.internal.deployment.SCAInstallTask.performTask
 (SCAInstallTask.java:61)
at com.ibm.ws.management.application.SchedulerImpl.run(SchedulerImpl.java:253)
at java.lang.Thread.run(Thread.java:568)
```

Reason

The bus member for the ″SCA.SYSTEM.cellnName.Bus″ bus is missing.

Resolution

In the administrative console, click **Service Integration** → **Buses** → **SCA.SYSTEM.*cellName*.Bus**. In the Topology section, click **Bus members**. Add the server or cluster where you want to install the business process or human task application as a bus member, then restart the affected server or cluster and try installing the application again.

Troubleshooting the execution of business processes:

This describes the solutions to common problems with business process execution.

In Business Process Choreographer Explorer, you can search for error message codes on the IBM

technical support pages.

1. On the error page, click the **Search for more information** link. This starts a search for the error code on the IBM technical support site. This site only provides information in English.

2. Copy the error message code that is shown on the error page to the clipboard. The error code has the format `CWWBcnnnnc`, where each `c` is a character and `nnnn` is a 4-digit number. Go to the WebSphere Process Server technical support page.
3. Paste the error code into the **Additional search terms** field and click **Go**.

Solutions to specific problems are in the following topics.

ClassCastException when stopping an application containing a microflow:

The SystemOut.log file contains ClassCastException exceptions around the time when an application containing a microflow had been stopped.

Reason

When an application is stopped, the classes contained in the EAR file are removed from the class path. However, microflow instances may still be executing that need these classes.

Resolution

Perform the following actions:

1. Stop the microflow process template first. From now on, it is not possible to start new microflow instances from that template.
2. Wait for at least the maximum duration of the microflow execution so that any running instances can complete.
3. Stop the application.

XPath query returns an unexpected value from an array:

Using an XPath query to access a member in an array returns an unexpected value.

Reason

A common cause for this problem is assuming that the first element in the array has an index value of zero. In XPath queries in arrays, the first element has the index value one.

Resolution

Check that your use of index values into arrays start with element one.

An activity has stopped because of an unhandled fault (Message: CWWBE0057I):

The system log contains a CWWBE0057I message, the process is in the state "running", but it does not proceed its navigation on the current path.

Reason

Invoke activities, inline human tasks, and Java snippets are put in a stopped state, if all of the following happen:

- A fault is raised by the activity
- The fault is not handled on the enclosing scope
- The continueOnError attribute of the activity is set to false

Resolution

The solution to this problem requires actions at two levels:

1. An administrator must repair the stopped activity instance manually. For example, to force complete or force retry the stopped activity instance.
2. The reason for the failure must be investigated. In some cases the failure is caused by a modeling error that must be corrected in the model.

For example, if you use the WebSphere Scheduler default calendar, and have an expiration time with 'Timeout' defined for your activity, make sure that the definition of the time period is in the correct format, in particular make sure that there is no blank between the number and the unit of time. Examples of correctly specified timeout periods:

- 1minute
- 2hours 4minutes 1second
- 1day 1hour

A microflow is not compensated:

A microflow has called a service, and the process fails, but the undo service is not called.

Resolution

There are various conditions that must be met to trigger the compensation of a microflow. Check the following:

1. Log on to the Business Process Choreographer Explorer and click **Failed Compensations** to check whether the compensation service has failed and needs to be repaired.
2. The compensation of a microflow is only triggered when the transaction for the microflow is rolled back. Check whether this is the case.
3. The compensationSphere attribute of the microflow must be set to required.
4. A compensation service is only run, if the corresponding forward service has not participated in the microflow's transaction. Ensure that the forward service does not participate in the navigation transaction, for example, on the reference of the process component, set the Service Component Architecture (SCA) qualifier suspendTransaction to True.

A long-running process appears to have stopped:

A long-running process is in the state running, but it appears that it is doing nothing.

Reason

There are various possible reasons for such behavior:

1. A navigation message has been retried too many times and has been moved to the retention or hold queue.
2. A reply message from the Service Component Architecture (SCA) infrastructure failed repeatedly.
3. The process is waiting for an event, timeout, or for a long-running invocation or task to return.
4. An activity in the process is in the stopped state.

Resolution

Each of the above reasons requires different corrective actions:

1. Check if there are any messages in the retention or hold queue, as described in the PDF for administering.
2. Check if there are any in the failed event management view of the administrative console.
   - If there are any failed events from Service Component Architecture (SCA) reply messages, reactivate the messages.
   - Otherwise, either force complete or force retry the long-running activity.
3. Check if there are activities in the stopped state, and repair these activities. If your system log contains a CWWBE0057I message you might also need to correct your model as described in Message: CWWBE0057I.

Invoking a synchronous subprocess in another EAR file fails:

When a long-running process calls another process synchronously, and the subprocess is located in another enterprise archive (EAR) file, the subprocess invocation fails.

Example of the resulting exception:

```
com.ibm.ws.sca.internal.ejb.util.EJBStubAdapter com.ibm.ws.sca.internal.ejb.util.EJBStubAdapter#003
Exception:
java.rmi.AccessException: CORBA NO_PERMISSION 0x49424307 No; nested exception is:
org.omg.CORBA.NO_PERMISSION: The WSCredential does not contain a forwardable token.
Please enable Identity Assertion for this scenario.
vmcid: 0x49424000 minor code: 307 completed: No
at com.ibm.CORBA.iiop.UtilDelegateImpl.mapSystemException(UtilDelegateImpl.java:202)
at javax.rmi.CORBA.Util.mapSystemException(Util.java:84)
```

Reason

Common Secure Interoperability Version 2 (CSIv2) identity assertion must be enabled when calling a synchronous subprocess in another EAR file.

Resolution

Configure CSIv2 inbound authentication and CSIv2 outbound authentication.

Unexpected exception during execution (Message: CWWBA0010E):

Either the queue manager is not running or the Business Process Choreographer configuration contains the wrong database password.

Resolution

Check the following:

1. If the `systemout.log` file contains `"javax.jms.JMSException: MQJMS2005: failed to create MQQueueManager"`, start the queue manager.
2. Make sure that the database administrator password stored in the Business Process Choreographer configuration matches the one set in the database.

Event unknown (Message: CWWBE0037E):

An attempt to send an event to a process instance or to start a new process instance results in a ″CWWBE0037E: Event unknown.″ exception.

Reason

A common reason for this error is that a message is sent to a process but the receive or pick activity has already been navigated, so the message cannot be consumed by this process instance again.

Resolution

To correct this problem:

- If the event is supposed to be consumed by an existing process instance, you must pass correlation set values that match an existing process instance which has not yet navigated the corresponding receive or pick activity.
- If the event is supposed to start a new process instance, the correlation set values must not match an existing process instance.

For more information about using correlation sets in business processes, see technote 1171649.

Cannot find nor create a process instance (Message: CWWBA0140E):

An attempt to send an event to a process instance results in a 'CreateRejectedException' message.

Reason

A common reason for this error is that a message is sent to a receive or pick activity that cannot instantiate a new process instance because its `createInstance` attribute is set to `no` and the values that are passed with the message for the correlation set which is used by this activity do not match any existing process instances.

Resolution

To correct this problem you must pass a correlation set value that matches an existing process instance.

For more information about using correlation sets in business processes, see Correlation sets in BPEL processes .

Uninitialized variable or NullPointerException in a Java snippet:

Using an uninitialized variable in a business process can result in diverse exceptions.

Symptoms

Exceptions such as:

- During the execution of a Java snippet or Java expression, that reads or manipulate the contents of variables, a NullPointerException is thrown.
- During the execution of an assign, invoke, reply or throw activity, the BPEL standard fault "uninitializedVariable" (message CWWBE0068E) is thrown.

Reason

All variables in a business process have the value null when a process is started, the variables are not pre-initialized. Using an uninitialized variable inside a Java snippet or Java expression leads to a NullPointerException.

Resolution

The variable must be initialized before it is used. This can be done by an assign activity, for example, the variable needs to occur on the to-spec of an assign, or the variable can be initialized inside a Java snippet.

Missing reply exception (message: CWWBE0071E):

The execution of a microflow or long-running process results in a MissingReplyException (message: CWWBE0071E), or this exception is found in the system log or SystemOut.log file.

Reason

A two-way operation must send a reply. This error is generated if the process ends without navigating the reply activity. This can happen in any of the following circumstances:

- The reply activity is skipped.
- A fault occurs and corresponding fault handler does not contain a reply activity.
- A fault occurs and there is no corresponding fault handler.

Resolution

Correct the model to ensure that a reply activity is always performed before the process ends.

Parallel paths are sequentialized:

There are two or more parallel invoke activities inside a flow activity, but the invoke activities are run sequentially.

Resolution

- To achieve real parallelism, each path must be in a separate transaction. Set the 'transactional behavior' attribute of all the parallel invoke activities to 'commit before' or 'requires own'.
- If you are using Cloudscape as the database system, the process engine will serialize the execution of parallel paths. You cannot change this behavior.

Copying a nested data object to another data object destroys the reference on the source object:

A data object, Father, contains another data object, Child. Inside a Java snippet, the object containing Child is fetched and set on a substructure of data object, Mother. The reference to Child in data object Father disappears.

Reason

The reference to Child is moved from Father to Mother.

Resolution

When such a data transformation is performed in a Java snippet, copy the data object before it is assigned to another object. The following code snippet illustrates how to do this:

```
BOCopy copyService = (BOCopy)ServiceManager.INSTANCE.locateService
                     ("com/ibm/websphere/bo/BOCopy");
DataObject Child = Father.get("Child");
DataObject BCopy = copyService.copy(Child);
Mother.set("Child", BCopy);
```

CScope is not available:

Starting a microflow or running a navigation step in a long-running process fails with an assertion, saying: 'postcondition violation !(cscope != null) '.

Reason

In certain situations, the process engine uses the compensation service, but it was not enabled.

Resolution

Enable the compensation service as described in the PDF for administration.

Working with process-related or task-related messages:

Describes how to get more information about Business Process Choreographer messages that are written to the display or a log file.

Messages that belong to Business Process Choreographer are prefixed with either *CWWB* for process-related messages, or *CWTK* for task-related messages. The format of these messages is *PrefixComponentNumberTypeCode*. The type code can be:

I Information message

W Warning message

E Error message

When processes and tasks run, messages are either displayed in Business Process Choreographer Explorer, or they are added to the `SystemOut.log` file and traces. If the message text provided in these files is not enough to help you solve your problem, you can use the WebSphere Application Server symptom database to find more information. To view Business Process Choreographer messages, check the `activity.log` file by using the WebSphere log analyzer.

1. Start the WebSphere log analyzer.

   Run the following script: *install_root*`/bin/waslogbr.sh`
2. **Optional:** Click **File > Update database > WebSphere Application Server Symptom Database** to check for the newest version of the symptom database.
3. **Optional:** Load the activity log.
   a. Select the activity log file
      - *install_root*`/profiles/`*profile_name*`/logs/activity.log` file
   b. click **Open**.

Troubleshooting Business Process Choreographer Explorer:

Use this to solve problems relating to the Business Process Choreographer Explorer.

Use the following information to solve problems relating to Business Process Choreographer Explorer.

- If you try to access Business Process Choreographer Explorer with a browser, but get the error message 'HTTP 404 - File not found', try the following:
  - Use the administrative console to make sure that the Web client application `BPCExplorer_node_name_server_name` is actually deployed and running on the server.
  - In the administrative console, on the page for the application, under "View Deployment Descriptor", verify that the context root is `/bpc`.
- If you get an error message when using Business Process Choreographer Explorer, click the **Search for more information** link on the error page. This starts a search for the error code on the IBM technical support site. This site only provides information in English. Copy the error message code that is shown on the Business Process Choreographer Explorer Error page to the clipboard. The error code has the format `CWWBcnnnnc`, where each `c` is a character and `nnnn` is a 4-digit number. Go to the WebSphere Process Server technical support page. Paste the error code into the **Additional search terms** field and click **Go**.
- If you get an `EngineMissingReplyException` message, this is a symptom of a problem with your process model. For more information about solving this, see "Troubleshooting the administration of business processes and human tasks."
- If you can log onto Business Process Choreographer Explorer, but some items are not displayed, or if certain buttons are not enabled, this indicates a problem with your authorization.

  Possible solutions to this problem include:
  - Use the administrative console to turn security on.
  - Check that you are logged onto Business Process Choreographer Explorer using the correct identity. If you log on with a user ID that is not a process administrator, all administrative views and options will be invisible or not enabled.
  - Use WebSphere Integration Developer to check or modify the authorization settings defined in the business process.
- Error message WWBU0024E Could not establish a connection to local business process EJB with a reason: ''Naming Exception''. This error can indicate that the business process container has been stopped. Verify that the application `BPEContainer_InstallScope` is running, where *InstallScope* is either the *cluster_name* or *hostname_servername*.

Related tasks

"Troubleshooting the execution of business processes" on page 29
This describes the solutions to common problems with business process execution.

Troubleshooting the administration of business processes and human tasks:

This article describes how to solve some common problems with business processes.

The following information can help you to debug problems with your business processes.

The administrative console stops responding if you try to stop a business process application while it still has process instances. Before you try to stop the application, you must stop the business processes so that no new instances are created, and do one of the following:

- Wait for all of the existing process instances to end in an orderly way.
- Terminate and delete all of the process instances.

Only then, can you stop the process application. For more information about preventing this problem, refer to technote 1166009.

Using process-related and task-related audit trail information:

Explains the event types and database structures for business processes and human tasks.

Logging must be enabled for the business process container, the task container, or both.

If logging is enabled, whenever a significant step during the running of a business process or a human task occurs, information is written to the audit log or Common Event Infrastructure (CEI) log. For more information about CEI, refer to the PDF for monitoring. The following topics describe the event types and database structures for business processes and human tasks.

Audit event types for business processes:

This describes the types of events that can be written to the audit log during the processing of business processes.

For an event to be logged, the following conditions must be met:

- The corresponding audit logging type is enabled for the business process container
- The event must be enabled for the corresponding entity in the process model

The following tables list the codes for audit events that can occur while business processes are running.

Table 1. Process instance events

Audit event	Event code
PROCESS_STARTED	21000
PROCESS_SUSPENDED	21001
PROCESS_RESUMED	21002
PROCESS_COMPLETED	21004
PROCESS_TERMINATED	21005
PROCESS_RESTARTED	21019
PROCESS_DELETED	21020
PROCESS_FAILED	42001
PROCESS_COMPENSATING	42003
PROCESS_COMPENSATED	42004
PROCESS_TERMINATING	42009
PROCESS_FAILING	42010

Table 1. Process instance events (continued)

Audit event	Event code
PROCESS_CORRELATION_SET_INITIALIZED	42027
PROCESS_COMPENSATION_INDOUBT	42030
PROCESS_WORKITEM_DELETED	42041
PROCESS_WORKITEM_CREATED	42042
PROCESS_COMPENSATION_FAILED	42046
PROCESS_EVENT_RECEIVED	42047
PROCESS_EVENT_ESCALATED	42049
PROCESS_WORKITEM_TRANSFERRED	42056

Table 2. Activity events

Audit event	Event code
ACTIVITY_READY	21006
ACTIVITY_STARTED	21007
ACTIVITY_COMPLETED	21011
ACTIVITY_CLAIM_CANCELED	21021
ACTIVITY_CLAIMED	21022
ACTIVITY_TERMINATED	21027
ACTIVITY_FAILED	21080
ACTIVITY_EXPIRED	21081
ACTIVITY_LOOPED	42002
ACTIVITY_SKIPPED	42005
ACTIVITY_TERMINATING	42008
ACTIVITY_FAILING	42011
ACTIVITY_OUTPUT_MESSAGE_SET	42012
ACTIVITY_FAULT_MESSAGE_SET	42013
ACTIVITY_STOPPED	42015
ACTIVITY_FORCE_RETRIED	42031
ACTIVITY_FORCE_COMPLETED	42032
ACTIVITY_UNDO_STARTED	42033
ACTIVITY_UNDO_SKIPPED	42034
ACTIVITY_UNDO_COMPLETED	42035
ACTIVITY_MESSAGE_RECEIVED	42036
ACTIVITY_LOOP_CONDITION_TRUE	42037
ACTIVITY_LOOP_CONDITION_FALSE	42038
ACTIVITY_WORKITEM_DELETED	42039
ACTIVITY_WORKITEM_CREATED	42040
ACTIVITY_ESCALATED	42050
ACTIVITY_WORKITEM_REFRESHED	42054
ACTIVITY_WORKITEM_TRANSFERRED	42055

Table 3. Events related to variables

Audit event	Event code
VARIABLE_UPDATED	21090

Table 4. Control link events

Audit event	Event code
LINK_EVALUATED_TO_TRUE	21034
LINK_EVALUATED_TO_FALSE	42000

Table 5. Process template events

Audit event	Event code
PROCESS_INSTALLED	42006
PROCESS_UNINSTALLED	42007

Table 6. Scope instance events

Audit event	Event code
SCOPE_STARTED	42020
SCOPE_SKIPPED	42021
SCOPE_FAILED	42022
SCOPE_FAILING	42023
SCOPE_TERMINATED	42024
SCOPE_COMPLETED	42026
SCOPE_COMPENSATING	42043
SCOPE_COMPENSATED	42044
SCOPE_COMPENSATION_FAILED	42045
SCOPE_EVENT_RECEIVED	42048
SCOPE_EVENT_ESCALATED	42051

Audit event types for human tasks:

This describes the types of events that can be written to the audit log during the processing of human tasks.

For an event to be logged, the following conditions must be met:

- The corresponding audit logging type is enabled for the human task container
- The event must be enabled for the corresponding entity in the task model

The following tables list the codes for audit events that can occur while human tasks are running.

Table 7. Task instance events

Audit event	Event code
TASK_CREATED	51001
TASK_DELETED	51002
TASK_STARTED	51003

Table 7. Task instance events (continued)

Audit event	Event code
TASK_COMPLETED	51004
TASK_CLAIM_CANCELLED	51005
TASK_CLAIMED	51006
TASK_TERMINATED	51007
TASK_FAILED	51008
TASK_EXPIRED	51009
TASK_WAITING_FOR_SUBTASK	51010
TASK_SUBTASKS_COMPLETED	51011
TASK_RESTARTED	51012
TASK_SUSPENDED	51013
TASK_RESUMED	51014
TASK_COMPLETED_WITH_FOLLOW_ON	51015
TASK_UPDATED	51101
TASK_OUTPUT_MESSAGE_UPDATED	51103
TASK_FAULT_MESSAGE_UPDATED	51104
TASK_WORKITEM_DELETED	51201
TASK_WORKITEM_CREATED	51202
TASK_WORKITEM_TRANSFERRED	51204
TASK_WORKITEM_REFRESHED	51205

Table 8. Task template events

Audit event	Event code
TASK_TEMPLATE_INSTALLED	52001
TASK_TEMPLATE_UNINSTALLED	52002

Table 9. Escalation instance events

Audit event	Event code
ESCALATION_FIRED	53001
ESCALATION_WORKITEM_DELETED	53201
ESCALATION_WORKITEM_CREATED	53202
ESCALATION_WORKITEM_TRANSFERRED	53204
ESCALATION_WORKITEM_REFRESHED	53205

Structure of the audit trail database view for business processes:

The AUDIT_LOG_B database view provides audit log information about business processes.

To read the content of the audit trail, use SQL or any other administration tool that supports the reading of database tables and views.

Audit events are related to process entities. The audit event types depend on the entity to which the event refers. The audit event types include:

- Process instance events (PIE)
- Activity instance events (AIE)
- Events related to variables (VAR)
- Control link events (CLE)
- Process template events (PTE)
- Scope-related events (SIE).

For a list of the audit event type codes, see "Audit event types for business processes" on page 37.

The following table describes the structure of the `AUDIT_LOG_B` audit trail view. It lists the names of the columns, the event types, and gives a short description for the column.

Inline tasks are logged in the `AUDIT_LOG_B` audit trail view and not in the `TASK_LOG` audit trail view. For example, claiming an inline participating task results in an ACTIVITY_CLAIMED event; a task-related event is not generated.

Table 10. Structure of AUDIT_LOG_B audit trail view

Name	PTE	PIE	AIE	VAR	CLE	SIE	Description
ALID	x	x	x	x	x	x	Identifier of the audit log entry.
EVENT_TIME	x	x	x	x	x	x	Timestamp of when the event occurred in Coordinated Universal Time (UTC) format.
EVENT_TIME_UTC	x	x	x	x	x	x	Timestamp of when the event occurred in Coordinated Universal Time (UTC) format.
AUDIT_EVENT	x	x	x	x	x	x	The type of event that occurred.
PTID	x	x	x	x	x	x	Process template ID of the process that is related to the current event.
PIID		x	x	x	x	x	Process instance ID of the process instance that is related to the current event.
VARIABLE_NAME				x			The name of the variable related to the current event.
SIID						x	The ID of the scope instance related to the event.
PROCESS_TEMPL _NAME	x	x	x	x	x	x	Process template name of the process template that is related to the current event.
TOP_LEVEL_PIID		x	x	x	x	x	Identifier of the top-level process that is related to the current event.
PARENT_PIID		x	x	x	x	x	Process instance ID of the parent process, or `null` if no parent exists.
VALID_FROM	x	x	x	x	x	x	Valid-from date of the process template that is related to the current event.

Table 10. Structure of AUDIT_LOG_B audit trail view (continued)

Name	PTE	PIE	AIE	VAR	CLE	SIE	Description
VALID_FROM_ UTC	x	x	x	x	x	x	Valid-from date of the process template that is related to the current event in Coordinated Universal Time (UTC) format.
ATID			x				The ID of the activity template related to the current event.
ACTIVITY_NAME			x			x	Name of the activity on which the event occurred.
ACTIVITY_KIND			x				Kind of the activity on which the activity occurred. Possible values are: KIND_EMPTY 3 KIND_INVOKE 21 KIND_RECEIVE 23 KIND_REPLY 24 KIND_THROW 25 KIND_TERMINATE 26 KIND_WAIT 27 KIND_COMPENSATE 29 KIND_SEQUENCE 30 KIND_SWITCH 32 KIND_WHILE 34 KIND_PICK 36 KIND_FLOW 38 KIND_SCRIPT 42 KIND_STAFF 43 KIND_ASSIGN 44 KIND_CUSTOM 45 KIND_RETHROW 46 These are the constants defined for ActivityInstanceData.KIND_*
ACTIVITY_STATE			x				State of the activity that is related to the event. Possible values are: STATE_INACTIVE 1 STATE_READY 2 STATE_RUNNING 3 STATE_SKIPPED 4 STATE_FINISHED 5 STATE_FAILED 6 STATE_TERMINATED 7 STATE_CLAIMED 8 STATE_TERMINATING 9 STATE_FAILING 10 STATE_WAITING 11 STATE_EXPIRED 12 STATE_STOPPED 13 These are the constants defined for ActivityInstanceData.STATE_*
CONTROL_LINK_ NAME					x		Name of the link that is related to the current link event.
PRINCIPAL		x	x	x	x	x	Name of the principal. This is not set for PROCESS_DELETED events.

Table 10. Structure of AUDIT_LOG_B audit trail view (continued)

Name	PTE	PIE	AIE	VAR	CLE	SIE	Description
VARIABLE_DATA				x			Data for variables for `variable updated` events.
EXCEPTION_TEXT		x	x			x	Exception message that caused an activity or process to fail. Applicable for: PROCESS_FAILED ACTIVITY_FAILED SCOPE_FAILED
DESCRIPTION		x	x	x	x	x	Description of activity or process, containing potentially resolved replacement variables.
CORR_SET_INFO		x					The string representation of the correlation set that was initialized at process start time. Provided with the processCorrelationSetInitialized event (42027).
USER_NAME		x	x				The name of the user whose work item has been changed. This is applicable for the following events: • Process instance work item deleted • Activity instance work item deleted • Process instance work item created • Activity instance work item created

Table 10. Structure of AUDIT_LOG_B audit trail view (continued)

Name	PTE	PIE	AIE	VAR	CLE	SIE	Description
ADDITIONAL_ INFO		x	x			x	The contents of this field depends on the type of the event: **ACTIVITY_WORKITEM_ TRANSFERRED, PROCESS_WORK_ITEM_ TRANSFERRED** The name of the user that received the work item. **ACTIVITY_WORKITEM_ CREATED, ACTIVITY_WORKITEM_ REFRESHED, ACTIVITY_ESCALATED** The list of all of the users for which the work item was created or refreshed, separated by ',’. If the list contains only one user, USER_NAME field is filled with the user name of this user. If the list contains only one user, the USER_NAME field is filled with the user name of this user and the ADDITIONAL_INFO field will be empty (null). **PROCESS_EVENT_RECEIVED, SCOPE_EVENT_RECEIVED** If available, the type of operation that was received by an event handler. The following format is used: '{' port type namespace '}' port type name ':' operation name. This field is not set for 'onAlarm' events.

Structure of the audit trail database view for human tasks:

The TASK_AUDIT_LOG database view provides audit log information about human tasks.

Inline tasks are logged in the AUDIT_LOG_B view , whereas all other task types are logged in the TASK_AUDIT_LOG view.

To read the content of the audit trail, use SQL or any other administration tool that supports the reading of database tables and views.

Audit events are related to task entities. The audit event types depend on the entity to which the event refers. The audit event types include:

- Task instance events (TIE)
- Task template events (TTE)
- Escalation instance events (EIE)

The following table describes the structure of the TASK_AUDIT_LOG audit trail view. It lists the names of the columns, the event types, and gives a short description for the column.

Inline tasks are logged in theAUDIT_LOG_B audit trail view and not in the TASK_AUDIT_LOG audit trail view. For example, claiming an inline participating task results in an ACTIVITY_CLAIMED event; a task-related event is not generated.

Table 11. Structure TASK_AUDIT_LOG audit trail view

Name	TIE	TTE	EIE	Description
ALID	x	x	x	The identifier of the audit log entry.
AUDIT_EVENT	x	x	x	The type of event that occurred. For a list of audit event codes, see "Audit event types for human tasks" on page 39.
CONTAINMENT_ CTX_ID	x	x		The identifier of the containing context, for example, ACOID, PTID, or PIID.
ESIID			x	The identifier of the escalation instance that is related to the current event.
ESTID			x	The identifier of the escalation template that is related to the current event.
EVENT_TIME	x	x	x	The time when the event occurred in Coordinated Universal Time (UTC) format.
FAULT_NAME	x			The name of the fault message. This attribute is applicable to the following events: TASK_FAILED TASK_FAULT_MESSAGE_UPDATED
FAULT_NAME_SPACE	x			The namespace of the fault message type. This attribute is applicable to the following events: TASK_FAILED TASK_FAULT_MESSAGE_UPDATED
FOLLOW_ON_TKIID	x			The ID of the follow-on task instance.
NAME	x	x	x	The name of the task instance, task template, or escalation instance that is associated with the event.
NAMESPACE	x	x		The namespace of the task instance, task template, or escalation instance that is associated with the event.
NEW_USER				The new owner of a transferred work item. This attribute is applicable to the following events:
	x			TASK_WORKITEM_CREATED
	x			TASK_WORKITEM_TRANSFERRED
			x	ESCALATION_WORKITEM_CREATED
			x	ESCALATION_WORKITEM_TRANSFERRED
OLD_USER				The previous owner of a transferred work item. This attribute is applicable to the following events:
	x			TASK_WORKITEM_TRANSFERRED
	x			TASK_WORKITEM_DELETED
			x	ESCALATION_WORKITEM_TRANSFERRED
			x	ESCALATION_WORKITEM_DELETED

Table 11. Structure TASK_AUDIT_LOG audit trail view (continued)

Name	TIE	TTE	EIE	Description
PARENT_CONTEXT_ID	x			The ID of the parent context of the task, for example, an activity template or a task instance. This is only set for subtasks and follow-on tasks.
PARENT_TASK_NAME	x			The name of the parent task instance or template. This is only set for subtasks and follow-on tasks.
PARENT_TASK_NAMESP	x			The namespace of the parent task instance or template. This is only set for subtasks and follow-on tasks.
PARENT_TKIID	x			The identifier of the parent task instance.
PRINCIPAL	x	x	x	The name of the principal whose request triggered the event.
TASK_KIND	x	x		The kind of the task. Possible values are: KIND_HUMAN 101 KIND_ORIGINATING 103 KIND_PARTICIPATING 105 KIND_ADMINISTRATIVE 106
TASK_STATE	x			The state of the task or task template. Possible values for task templates are: STATE_STARTED 1 STATE_STOPPED 2 Possible values for task instances are: '1' :'STATE_INACTIVE' '2' :'STATE_READY' '3' :'STATE_RUNNING' '5' :'STATE_FINISHED' '6' :'STATE_FAILED' '7' :'STATE_TERMINATED' '8' :'STATE_CLAIMED' '12' :'STATE_EXPIRED' '101':'FORWARDED'
TKIID	x		x	The identifier of the task instance.
TKTID	x	x		The identifier of the task template.
TOP_TKIID	x			The identifier of the top task instance.
VALID_FROM		x		Valid-from date of the task template that is related to the current event.

Table 11. Structure TASK_AUDIT_LOG audit trail view (continued)

Name	TIE	TTE	EIE	Description
WORK_ITEM_REASON	x		x	The reason for the assignment of the work item. Possible values are: POTENTIAL_OWNER 1 EDITOR 2 READER 3 OWNER 4 POTENTIAL_STARTER 5 STARTER 6 ADMINISTRATOR 7 POTENTIAL_SENDER 8 ORIGINATOR 9 ESCALATION_RECEIVER 10 POTENTIAL_INSTANCE_CREATOR 11 The reason is set for all events related to work items: ESCALATION_RECEIVER is set for escalation work item related events, while the other reasons apply to task work item related events.

Troubleshooting business rules manager

Some areas to examine if you experience problems with business rules manager are: login error, login conflict, and access conflict.

Login error:

Upon logging in, you receive a login error message.

The login error message:

```
Unable to process login. Please check User ID and password and try again.
```

This error occurs when global security is enabled and either the userid, the password, or both, are incorrect.

Note: Login errors occur only when global security is enabled.

1. Click **OK** on the error message.
   You return to the login page.
2. Enter valid **User ID** and **Password**.
   Make sure that Caps Lock key is not on, if passwords are case sensitive.
   Make sure the userid and password are spelled correctly.
   Check with the system administrator to see that the userid and password are correct.
3. Click the **Login** button.

If you resolve the login error, you will now be able to login to the business rules manager. If the error is not resolved, contact your system administrator.

Login conflict error:

This event occurs when another user with the same userid is already logged in to the application.

The login conflict message is:

```
Another user is currently logged in with the same User ID. Select from the
following options:
```

Usually this error occurs when a user closed the browser without logging out. When this condition occurs, the next attempted login before the session timeout expires results in a login conflict.

Note: Login conflict occurs only when global security is enabled.

There are three options that you can choose.

- Return to the login page.
  Use this option if you want to open the application with a different userid.
- Logout the other user with the same userid.
  Use this option to logout the other user and start a new session.

  Note: Any unpublished local changes made in the other session are lost.
- Inherit the context of the other user with the same userid and logout that user.
  Use this option to continue work already in progress. All unpublished local changes in the previous session that have been saved are not lost. The business rules manager opens to the last page displayed in the previous session.

Access conflict errors:

Access conflicts occur when a business rule is updated in the database by one user at the same time another user is updating the same rule.

This error is reported when you publish your local changes to the database.

These are the actions to correct access conflict errors.

- Publish the Rule page.
- Find the source of the business rule that is causing the error and check if your changes on the local machine are still valid. Your change may no longer be required after the changes done by another user.
- If you choose to continue working in the business rule manager, you must reload Rule Pages in the error from the database as your local changes of Rule pages in error are no longer usable. You can still use local changes in other Rule pages that are not in error.
- Reload a Rule page, by clicking **Reload** in the Publish and Revert page of the rule for which the error was reported.

Troubleshooting the Common Base Event browser

There are four primary conditions under which you are unable to access the Common Base Event browser.

Conditions

"Cannot find server"

WebSphere Process Server (or network server) is unavailable. When you attempt to launch the event browser URI, a "Cannot find server" browser page will be returned, which indicates that the server is unavailable. In this case, you need to contact the IBM Help Desk to determine the cause of the problem.

"File not found"
WebSphere Process Server is available; however, the event browser application may not be installed or started on the server. When you attempt to launch the event browser URI, a "File not found" browser page will be returned, which indicates that the server is available, but the URI is not available on that server. In this case, you need to contact the IBM Help Desk to determine the cause of the problem.

Logon panel appears
The WebSphere Process Server and the event browser are available; however, you have not been mapped to the proper role to allow access to the event browser. You will be prompted with a logon panel. When you enter your userID and password, attempting to log in, the login will fail. In this case, you need to contact the IBM Help Desk to get the proper authorization to launch the event browser.

Error message on "Get event data" panel
The WebSphere Process Server and the event browser are available, and you have the proper authority to gain access; however, the Common Event Infrastructure server is unavailable. An error message will be displayed on the event browser **Get Events** panel, when you click the **Get Events** button. The error information is logged to the message log.

WebSphere Application Server troubleshooting

Because IBM WebSphere Process Server is built on IBM WebSphere Application Server Network Deployment, version 6.0, you may want to consult troubleshooting information in the WebSphere Application Server documentation.

IBM WebSphere Process Server is built on WebSphere Application Server Network Deployment, version 6.0. WebSphere Process Server also works with infrastructure and platform services from IBM WebSphere Application Server, version 6.0.

For more information about troubleshooting in WebSphere Application Server, refer to Troubleshooting and support in the WebSphere Application Server for z/OS documentation. To view the topic, expand **Troubleshooting and support > Troubleshooting WebSphere applications** in the table of contents.

Resources for diagnosing and fixing problems

In addition to the information center, there are several Web-based resources for researching and resolving problems related to IBM WebSphere Process Server, version 6.0.

Product support page: The official site for providing tools and sharing knowledge about problems with IBM WebSphere Process Server, version 6.0, is the WebSphere Process Server support page.

The support page includes the following resources and capabilities:

- A search field for searching the entire support site for documentation and fixes related to a specific exception, error message, or other problem. Use this search function before contacting IBM Support directly.
- **Hints and Tips**, **Technotes**, and **Solutions** links take you to specific problems and resolutions documented by WebSphere Process Server technical support personnel.
- A link **All fixes, fix packs, refresh packs, and tools** provides free WebSphere Process Server maintenance upgrades and problem determination tools.

- Fixes are software patches which address specific WebSphere Process Server defects. Selecting a specific defect from the list in the **All fixes, fix packs, refresh packs, and tools** page takes you to a description of what problem the fix addresses.
- Fix packs are bundles of multiple fixes, tested together and released as a maintenance upgrade to WebSphere Process Server. Refresh packs are fix packs that also contain new function. If you select a fix pack from this page, you are taken to a page describing the target platform, WebSphere Process Server prerequisite level, and other related information. Selecting the **list defects** link on that page displays a list of the fixes which the fix pack includes. If you intend to install a fix which is part of a fix pack, it is usually better to upgrade to the complete fix pack rather than to just install the individual fix.
- Tools are free programs that help you analyze the configuration, behavior and performance of your WebSphere Process Server installation.

Note: Some resources on the WebSphere Process Server support page are marked with a key icon. To access these resources, you must supply a user ID and password, or to register if you do not already have an ID. When registering, you are asked for your contract number, which is supplied as part of a WebSphere Process Server purchase.

WebSphere Developer Domain: The Developer Domains are IBM-supported sites for enabling developers to learn about IBM software products and how to use them. They contain resources such as articles, tutorials, and links to newsgroups and user groups. You can reach the WebSphere Developer Domain on the IBM developerWorks® Web site. Additional information about WebSphere Process Server can be found on the IBM developerWorks Business Integration Zone.

IBM Support page: IBM Support provides documents that can save you time gathering information needed to resolve this problem. Before opening a PMR, see the IBM Support page.

Messages, explanations and responses

Examining messages that you may encounter, including each explanation, and recommended response, can help you troubleshoot problems in the runtime environment.

Messages can help you diagnose problems with applications running on IBM WebSphere Process Server.

For a list of runtime messages, including explanations and responses, refer to the Reference section of the WebSphere Process Server documentation.

IBM Support Assistant

The IBM Support Assistant is a tool that helps you use various IBM Support resources.

The IBM Support Assistant offers four components to help you with software questions:

- a Search component, which helps you access pertinent Support information in multiple locations.

- a Support Links component, which provides a convenient location to access various IBM Web resources such as IBM product sites, IBM support sites and links to IBM news groups.
- an Education component, which provides guided access to IBM product education web sites, including IBM Education Assistant modules.
- a Service component, which helps you submit an enhanced problem report that includes key system data to IBM.

Using the IBM Support Assistant with WebSphere Process Server, requires installing IBM Support Assistant, version 2.0, and then installing plug-ins for WebSphere Process Server.

To download IBM Support Assistant:

IBM Support Assistant, version 2.0, is a stand-alone utility. It includes an installation program and guide. Download the IBM Support Assistant from the IBM Support Assistant download page. Some IBM products include the IBM Support Assistant on their installation media. For the latest information on IBM Support Assistant, see the IBM Support Assistant technote on the IBM Software Support site.

After the IBM Support Assistant is installed, you can start it with the **Start** menu option on Windows® operating systems or with the startisa.sh shell script on all other platforms. On Windows operating systems, the IBM Support Assistant opens in its own window. On all other platforms, it opens in a Web browser.

To download an IBM Support Assistant plug-in for WebSphere Process Server:

After IBM Support Assistant is installed and running, click **Find Plug-ins** to view search links that can be used to find plug-ins for specific IBM products. Select **WebSphere** to initiate a search for all WebSphere product plug-ins. This list is also available from the IBM Support search page. Select **WebSphere Process Server** to open the download page for the plug-in.

To learn more about how to use the IBM Support Assistant, click the **User Guide** tab in the IBM Support Assistant window.

Searching knowledge bases

If you have a problem with your IBM software, you want it resolved quickly. Begin by searching the available knowledge bases to determine whether the resolution to your problem is already documented.

1. Search the information center.

   IBM provides extensive documentation in the form of online information centers. An information center can be installed on your local machine or on a local intranet. An information center can also be viewed on the IBM Web site. You can use the powerful search function of the information center to query conceptual and reference information as well as detailed instructions for completing tasks.

2. Search the Internet.

   If you cannot find an answer to your question in the information center, search the Internet for the latest, most complete information that might help you resolve your problem. To search multiple Internet resources for your product, open the IBM Support Assistant and select the **Web Search** tab. From this page, you can search a variety of resources including:

- IBM technotes
- IBM downloads
- IBM Redbooks™
- IBM developerWorks
- Forums and newsgroups
- Google

Obtaining help from IBM

If you are not able to resolve a problem with IBM WebSphere Process Server by following the steps described in the Troubleshooting documentation, by looking up error messages in the message reference, or by looking for related documentation on the online help, contact IBM Technical Support.

Purchase of IBM WebSphere Process Server entitles you to one year of telephone support under the Passport Advantage® program. For details on the Passport Advantage program, visit Passport Advantage Web site.

The number for Passport Advantage members to call for WebSphere Process Server support is 1-800-237-5511. Have the following information available when you call:

- Your Contract or Passport Advantage number.
- Your WebSphere Process Server version and revision level, plus any installed fixes.
- Your operating system name and version.
- Your database type and version.
- Basic topology data: how many machines are running how many application servers, and so on.
- Any error or warning messages related to your problem.

IBM Support has documents that can save you time gathering information needed to resolve this problem. Before opening a PMR, see the IBM Support page for WebSphere Process Server.

1. Run the Collector Tool. WebSphere Process Server comes with a built-in utility that collects logs and configuration information into one file, the Collector Tool. IBM Technical Support may ask you to run this tool and submit the output.
2. Enable tracing. WebSphere Process Server support engineers might ask you to enable tracing on a particular component of the product to diagnose a difficult problem.
3. Use consulting services. For complex issues such as high availability and integration with legacy systems, education, and help in getting started quickly with the WebSphere product family, consider using IBM consulting services. To learn about these services, browse the IBM Global Services Web site.

Getting fixes

A product fix may be available to resolve your problem.

You can determine what fixes are available by running a query from the IBM

Support Assistant.

1. Open the IBM Support Assistant.
2. From the search page, type **fix** in the Search phrase entry.

3. Select **IBM Software Support Documents**, **specific document type**, **IBM downloads** and the product name.
4. Click the **Search** button. The search results are returned as a link in the left frame.

You can search for recommended updates on the IBM Support page for WebSphere Process Server to view a comprehensive list of recommended updates for WebSphere Process Server releases, along with a list of previously delivered updates.

Tip: Receive a custom e-mail each week with important news about the IBM products you select. My Support e-mail can now include technotes, release notes, education, and more. If you already receive weekly e-mails, update your profile today with the new options.

About My Support:

- Go to the My Support Web site. It is available from any IBM Support page.
- If you are new to My Support, go to My Support and click **register now**.
- Update your profile to select new products or include new content by clicking the **Edit profile** tab.
- Register for other useful e-mails by clicking the **Subscribe to email** link.

Applying product maintenance

Because WebSphere Process Server for z/OS is installed and configured into the WebSphere Application Server, the maintenance applied to WebSphere Process Server for z/OS is done so through the WebSphere Application Server product, using the WebSphere Application Server techniques for applying product maintenance.

Contact the IBM Software Support Center for information about preventive service planning (PSP) upgrades for the product. For more information about PSP upgrades for WebSphere Process Server for z/OS, see the *Program Directory for WebSphere Process Server for z/OS*. Although the Program Directory contains a list of required program temporary fixes (PTFs), the most current information is available from the IBM Software Support Center.

Use the following procedure whenever you want to apply a new service release to your system.

See *Applying product maintenance* in the WebSphere Application Server for z/OS information center for a description of how to apply product maintenance

You can maintain service to clients when upgrading the host cluster of WebSphere Application Server for z/OS.

Applying a service level or restoring to the previous accepted service level

Because WebSphere Process Server for z/OS is installed and configured into the WebSphere Application Server, the service level applied to WebSphere Process Server for z/OS is done so through the WebSphere Application Server product, using the WebSphere Application Server techniques for applying service level or restoring to the previous accepted service level

Service that is applied to the product data sets and product HFS occasionally requires corresponding changes to be made to the configuration HFS for existing application serving environments that configure at a lower service level. Most of these ″post-maintenance″ or ″post-install″ updates can be performed automatically. This is done by the post-installer. See *Applying a service level or restoring to the previous accepted service level* in the WebSphere Application Server for z/OS information center for a description of how to apply service

Contacting IBM Software Support

IBM Software Support provides assistance with product defects.

To take advantage of unique Support features go to the WebSphere Process Server support page.

Before contacting IBM Software Support, your company must have an active IBM software maintenance contract, and you must be authorized to submit problems to IBM. The type of software maintenance contract that you need depends on the type of product you have.

- For IBM eServer™ software products (including, but not limited to, DB2 and WebSphere products that run in zSeries®, pSeries®, and iSeries™ environments), you can purchase a software maintenance agreement by working directly with an IBM sales representative or an IBM Business Partner. For more information about support for eServer software products, refer to the IBM Technical support advantage Web site.
- For IBMLink™, CATIA, Linux®, S390, iSeries, pSeries, zSeries and other support agreements, refer to the IBM Support Line Web site.
- For Subscription and Support (S & S) contracts, refer to the IBM Software Service Request Web site.
- For IBM distributed software products (including, but not limited to, Tivoli®, Lotus®, and Rational® products, as well as DB2 and WebSphere products that run on Windows or UNIX® operating systems), enroll in Passport Advantage in one of the following ways:
  - Online: Go to the Passport Advantage Web site and click **How to Enroll**.
  - By phone: For the phone number to call in your country, go to the contacts page of the and click the name of your geographic region.

  If you are not sure what type of software maintenance contract you need, call 1-800-IBMSERV (1-800-426-7378) in the United States or, from other countries, go to the contacts page of the IBM Software Support Handbook on the Web and click the name of your geographic region for phone numbers of people who provide support for your location.

1. Determine the business impact of your problem. When you report a problem to IBM, you are asked to supply a severity level. Therefore, you need to understand and assess the business impact of the problem you are reporting. Use the following criteria:

Table 12.

Severity level	Description
Severity 1	Critical business impact: You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.

Table 12. (continued)

Severity level	Description
Severity 2	Significant business impact: The program is usable but is severely limited.
Severity 3	Some business impact: The program is usable with less significant features (not critical to operations) unavailable.
Severity 4	Minimal business impact: The problem causes little impact on operations, or a reasonable circumvention to the problem has been implemented.

2. Describe your problem and gather background information. When explaining a problem to IBM, be as specific as possible. Include all relevant background information so that IBM Software Support specialists can help you solve the problem efficiently. To save time, know the answers to these questions:
   - What software versions were you running when the problem occurred?
   - Do you have logs, traces, and messages that are related to the problem symptoms? IBM Software Support is likely to ask for this information.
   - Can the problem be recreated? If so, what steps led to the failure?
   - Have any changes been made to the system? (For example, hardware, operating system, networking software, and so on.)
   - Are you currently using a workaround for this problem? If so, please be prepared to explain it when you report the problem.
3. Submit your problem to IBM Software Support. You can submit your problem in one of two ways:
   - Online: Go to the Submit and track problems page on the IBM Software Support site. Enter your information into the appropriate problem submission tool.
   - By phone: For the phone number to call in your country, go to the contacts page of the IBM Software Support Handbook on the Web and click the name of your geographic region.

If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Software Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Software Support provides a workaround for you to implement until the APAR is resolved and a fix is delivered.

IBM publishes resolved APARs on the IBM product support Web pages daily, so that others who experience the same problem can benefit from the same resolutions.

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IBM Websphere Process Server for z/OS version 6.0.1

Printed in USA