Configuring JMS Providers as JMS Sources and Targets
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Overview

This chapter includes the following topics:
- Integrating JMS Providers with PowerExchange for JMS, 1
- Before You Begin, 3

Integrating JMS Providers with PowerExchange for JMS

PowerExchange for JMS integrates with JMS to extract data from JMS sources and write data to JMS targets. When reading data from JMS or writing data to JMS, the Integration Service connects to a JMS provider. JMS providers are message-oriented middleware systems that can send and receive JMS messages.

You can use the following JMS providers as JMS sources and targets:
- BEA WebLogic Server 6.1
- BEA WebLogic Server 8.1
- IBM WebSphere 6
- JBoss 3.2.5
- SonicMQ 5.02
- TIBCO Enterprise Message Service 4.2.0

To integrate JMS Providers with PowerExchange for JMS, complete the following steps:
- **Configure JNDI settings for the JMS Provider.** Create a connection factory, destination, and JMS queue or topic in the JMS provider.
- **Configure application connections.** Use the JNDI settings configured in the JMS provider to create application connections in the PowerCenter Workflow Manager.

Configuring JNDI Settings

Configure the Java Naming and Directory Interface (JNDI) settings for the JMS provider. JMS providers use JNDI to store connection information. JNDI stores the following connection information in the JNDI database:
- **Connection factory.** A JMS provider creates a connection factory to establish connections to JMS destinations. The connection factory can be a queue connection factory or topic connection factory. For more information, see “Understanding PowerExchange for JMS” in the PowerExchange for JMS User Guide.
- **Context factory.** The class identification of a JNDI provider. For more information, see “Understanding PowerExchange for JMS” in the PowerExchange for JMS User Guide.
- **Destination.** The destination contains information about message sources and destinations. If you configured a queue connection factory, you specify a queue name as the destination. If you configured a topic connection factory, you specify a topic name as the destination.

- **Queue.** Define a JMS queue connection factory when you want a JMS provider to send and receive messages using the point-to-point domain.

- **Topic.** Define a JMS topic connection factory when you want a JMS provider to send and receive messages using the publish/subscribe domain.

- **JNDI name.** The name used to bind the connection factory to the namespace on the application server.

### Configuring Application Connections

Use the JNDI settings configured in the JMS provider to configure the following application connections in the Workflow Manager:

- JNDI application connection
- JMS application connection

When you configure JNDI application connections, you provide the JNDI context factory and JNDI provider URL in the Connection Object Definition dialog box.

The following figure shows an example of a JNDI application connection:

![Connection Object Definition](image)

The Integration Service uses this information to connect to JNDI to retrieve the connection factory and destination.

When you configure JMS application connections, you select a queue or topic destination type and provide the JMS connection factory and JMS destination for the JMS provider in the Connection Object Definition dialog box. If you enable recovery for a real-time JMS session, you also provide the JMS recovery destination.
Before You Begin

Before you install and configure a JMS provider, complete the following tasks:

1. Install JRE 1.3.1 on the JMS provider machine.
   
   If you use BEA WebLogic Server 8.1 as the JMS Provider, install JRE 1.4.1. For more information, see “Configuring BEA WebLogic Server 8.1” on page 11.

2. Add the location to the JRE bin directory to the system path.

   On Windows, add the JRE /bin directory to the system path from the Control Panel. For example, enter the following command:
   
   c:\Program Files\Java\j2re1.3.1\bin

   On UNIX, add the JRE /bin directory to the system path using the C shell or Bourne shell. For example, using the C shell:
   
   set path=$JAVA_HOME/bin

   For example, using the Bourne shell:
   
   PATH = /Java/j2re1.3.1/bin
This chapter includes the following topics:

- Configuring BEA WebLogic Server 6.1, 5
- Configuring Application Connections for BEA WebLogic Server 6.1, 9

## Configuring BEA WebLogic Server 6.1

You can configure JNDI settings to use BEA WebLogic Server 6.1 as a provider for JMS sources or targets.

To configure JNDI settings for BEA WebLogic Server, complete the following steps:

1. Set the CLASSPATH.
2. Configure a connection factory.
3. Configure a JMS store (optional).
4. Configure a JMS server.
5. Configure a destination.

### Step 1. Set the CLASSPATH

Set the CLASSPATH to the following JAR files:

- `weblogic.jar`
- `pmjmsplugin.jar`
- `pmserversdk.jar`

#### Setting the CLASSPATH on Windows

Set the CLASSPATH from the Control Panel. For example, enter the following command:

```
c:\bea\wlserver6.1\lib\weblogic.jar
```

#### Setting the CLASSPATH on UNIX

When you set the CLASSPATH, use the following guidelines in a UNIX shell:

<table>
<thead>
<tr>
<th>UNIX/Linux Shell</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C shell</td>
<td>setenv CLASSPATH &lt;path&gt;:$CLASSPATH</td>
</tr>
<tr>
<td>Bourne shell</td>
<td>CLASSPATH = &lt;path&gt;; export CLASSPATH</td>
</tr>
</tbody>
</table>
For example, using the C shell:

```
sentenv PATH bea/wlserver6.1/lib/weblogic.jar: $path
```

For example, using the Bourne shell:

```
CLASSPATH = bea/wlserver6.1/lib/weblogic.jar; export CLASSPATH
```

### Step 2. Configure a Connection Factory

#### To configure a connection factory:

1. From the BEA WebLogic Server Console, select JMS > Connection Factories.
2. Click Configure a New JMS Connection Factory.

The JMS Connection Factory page appears.

![JMS Connection Factory page](image)

#### 3. Enter the following settings:

<table>
<thead>
<tr>
<th>Connection Factory Property</th>
<th>Required/Optional</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Optional</td>
<td>Enter a name under which you want to store the connection factory settings in BEA WebLogic Server. If you do not enter a connection factory name, BEA WebLogic Server assigns a name.</td>
</tr>
<tr>
<td>JNDIName</td>
<td>Required</td>
<td>Enter a unique name for the connection factory. This is the name that is stored in JNDI.</td>
</tr>
<tr>
<td>Client ID</td>
<td>Optional</td>
<td>Client identifier. For information about this attribute, see the BEA WebLogic Server documentation.</td>
</tr>
<tr>
<td>Default Priority</td>
<td>Optional</td>
<td>You can change the value for the priority. When you run a PowerCenter session to read JMS messages from a BEA WebLogic Server provider, the messages use this value for the JMSPriority header field unless otherwise specified.</td>
</tr>
<tr>
<td>Default Time To Live</td>
<td>Optional</td>
<td>For information about this attribute, see the BEA WebLogic Server documentation.</td>
</tr>
</tbody>
</table>
4. Enter the value for the JNDI name in the Value You Configured column for the JMS Connection Factory application connection attribute in Table 2-2 on page 9.

5. Click the Targets tab.

6. Select a server and move it to the Chosen pane.

7. Click Apply.

**Step 3. Configure a JMS Store**

Configure a JMS store when you want BEA WebLogic Server to use persistent messaging when reading and writing JMS messages. The type of store you configure determines the manner in which the JNDI database stores the JNDI settings you configure. You can configure the following store types:

- **JMSJDBC Store.** JNDI stores the settings using JDBC.
- **JMSFile Store.** JNDI stores the settings in a file system on your machine.

For more information about persistent messaging, see the BEA WebLogic Server documentation.

**To configure a JMS JDBC Store:**

1. From the Console pane, select Services > JMS > Stores.
2. Click Configure a New JMSJDBC Store.
3. Enter a name for the JMSJDBC Store.
4. Enter the name of the JDBC connection pool for this store.
5. Optionally, enter a prefix name.
   - For more information about prefix names, see the BEA WebLogic Server documentation.
6. Click Create.

**To configure a JMS File Store:**

1. From the Console pane, select Services > JMS > Stores.
2. Click Configure a New JMSFile Store.
3. Enter a name for the file in which JNDI will store the settings.

### Connection Factory Property | Required/Optional | Description
--- | --- | ---
Default Time To Deliver | Optional | For information about this attribute, see the BEA WebLogic Server documentation.
Default Delivery Mode | Optional | You can change the value for the delivery mode. When you run a PowerCenter session to read JMS messages from a BEA WebLogic Server provider, the messages use this value for the JMSDeliveryMode header field unless otherwise specified.
Default Redelivery Delay | Optional | For information about this attribute, see the BEA WebLogic Server documentation.
Messages Maximum | Optional | For information about this attribute, see the BEA WebLogic Server documentation.
Overrun Policy | Required | Select Keep Old or Keep New. For information about this attribute, see the BEA WebLogic Server documentation.
Allow Close In On Message | Optional | For information about this attribute, see the BEA WebLogic Server documentation.
Acknowledge Policy | Optional | Select All or Previous. For information about this attribute, see the BEA WebLogic Server documentation.
4. Enter the directory where you want JNDI to create the file.
5. Click Create.

Step 4. Configure a JMS Server

Configure a JMS Server to send and receive JMS messages.

To configure a JMS Server:
1. From the Console pane, select Services > JMS > Servers.
2. Click Configure a New JMS Server.
3. Enter a name for the JMS Server.
4. Select a persistent store that you want to associate with the server if you want messages to use persistent messaging.
   For more information about persistent messaging, see the BEA WebLogic Server documentation.
5. Optionally, select a paging store.
   For more information about paging stores, see the BEA WebLogic Server documentation.
6. Optionally, select a temporary template.
   You may want to configure temporary templates when using the ReplyTo field in JMS target messages. For more information about temporary templates, see the BEA WebLogic Server documentation.
7. Click Create.
8. Click the Targets tab.
9. Select a server from the list of servers in the Targets menu and click Apply.

Step 5. Configure a JMS Destination

After you configure a JMS Server, configure a JMS queue destination or a JMS topic destination to store in JNDI. The Integration Service connects to JNDI to retrieve JMS messages from a BEA WebLogic Server source and write messages to a BEA WebLogic Server target.

If you enable recovery for a real-time JMS session, you also configure a recovery queue or topic destination.

To configure a JMS destination:
1. From the Console pane, select Services > JMS > Servers > <JMS Server name> > Destinations.
2. Click Configure a New JMSQueue or Configure a New JMSTopic.
3. Enter a name under which to store the queue or topic settings in BEA WebLogic Server.
   If you do not enter a name, BEA WebLogic Server assigns a name.
4. Enter a unique name for the queue or topic.
   This name is stored in JNDI.
5. Enter this value in the Value You Configured column for the Queue JMS Destination or Topic JMS Destination application connection attribute in Table 2-2 on page 9.
   If you are configuring a recovery queue or topic destination, enter this value in the Value You Configured column for the JMS Recovery Destination application connection attribute in Table 2-2 on page 9.
6. Select one of the following values for Enable Store:
   - Default. BEA WebLogic Server allows persistent messaging if you have a JMS store.
   - False. BEA WebLogic Server does not allow persistent messaging.
BEA WebLogic Server allows persistent messaging if you have a JMS store. However, if you have not enabled persistent messaging, BEA WebLogic Server JMS does not start.

For more information about the Enable Store option, see the BEA WebLogic Server documentation.

7. Optionally, select a template.
   For more information about templates, see the BEA WebLogic Server documentation.

8. Optionally, add destination keys.
   For more information about destination keys, see the BEA WebLogic Server documentation.

9. Click Create.
10. If you enable recovery for a real-time JMS session, repeat steps 1 to 9 to configure a unique JMS recovery destination.
11. Stop and restart the server.

Configuring Application Connections for BEA WebLogic Server 6.1

Table 2-1 shows the JNDI application connection attributes. Refer to this table when you configure a JNDI application connection in the Workflow Manager:

Table 2-1. JNDI Application Connection Attributes for BEA WebLogic Server 6.1

<table>
<thead>
<tr>
<th>Application Connection Attribute</th>
<th>Default Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>JNDI Context Factory</td>
<td><code>weblogic.jndi.WLInitialContextFactory</code></td>
</tr>
</tbody>
</table>
| JNDI Provider URL                | `t3://<WebLogic_Server_hostname>:<port>`

where WebLogic Server host name is the host name or IP address of the BEA WebLogic Server and port is the port number for the BEA WebLogic Server.

Table 2-2 shows the JMS application connection attributes, where you configure them for BEA WebLogic Server 6.1, and blank spaces where you write the attribute values you configured. Refer to this table when you configure a JMS application connection in the Workflow Manager:

Table 2-2. JMS Application Connection Attributes for BEA WebLogic Server 6.1

<table>
<thead>
<tr>
<th>JMS Destination Type</th>
<th>Application Connection Attribute</th>
<th>Required/Optional</th>
<th>BEA WebLogic Server Console</th>
<th>Value You Configured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queue</td>
<td>JMS Connection Factory</td>
<td>Required</td>
<td>JMS Connection Factory</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Destination</td>
<td>Required</td>
<td>JMSQueue Name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Recovery Destination</td>
<td>Optional</td>
<td>JMSQueue Name for recovery</td>
<td></td>
</tr>
<tr>
<td>Topic</td>
<td>JMS Connection Factory</td>
<td>Required</td>
<td>JMS Connection Factory</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Destination</td>
<td>Required</td>
<td>JMSTopic Name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Recovery Destination</td>
<td>Optional</td>
<td>JMSTopic Name for recovery</td>
<td></td>
</tr>
</tbody>
</table>
Configuring BEA WebLogic Server 8.1

You can configure JNDI settings to use BEA WebLogic Server 8.1 as a provider for JMS sources or targets.

To configure JNDI settings for BEA WebLogic, complete the following steps:

1. Set the CLASSPATH.
2. Configure a connection factory.
3. Configure a JMS store (optional).
4. Configure a JMS server.
5. Configure a destination.

Step 1. Set the CLASSPATH

Set the CLASSPATH to the following JAR files:

- weblogic.jar
- pmjmsplugin.jar
- pmserver/sdk.jar

Setting the CLASSPATH on Windows

Set the CLASSPATH from the Control Panel. For example, enter the following command:

c:\bea\weblogic8.1\server\lib\weblogic.jar

Setting the CLASSPATH on UNIX

When you set the CLASSPATH, use the following guidelines in a UNIX shell:

<table>
<thead>
<tr>
<th>UNIX/Linux Shell</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C shell</td>
<td>setenv CLASSPATH &lt;path&gt;$CLASSPATH</td>
</tr>
<tr>
<td>Bourne shell</td>
<td>CLASSPATH = &lt;path&gt;; export CLASSPATH</td>
</tr>
</tbody>
</table>
For example, using the C shell:

`sentenv PATH bea/weblogic81/server/lib/weblogic.jar: $path`

For example, using the Bourne shell:

`CLASSPATH = bea/weblogic81/server/lib/weblogic.jar; export CLASSPATH`

### Step 2. Configure a Connection Factory

**To configure a connection factory:**

1. From the BEA WebLogic Server Admin Console, select JMS > Connection Factories.
2. Click Configure a New JMS Connection Factory.

The JMS Connection Factory page appears.

3. Enter the following settings:

<table>
<thead>
<tr>
<th>Connection Factory Property</th>
<th>Required/Optional</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Optional</td>
<td>Enter a name under which you want to store the connection factory settings in BEA WebLogic Server. If you do not enter a connection factory name, BEA WebLogic Server assigns a name.</td>
</tr>
<tr>
<td>JNDI Name</td>
<td>Required</td>
<td>Enter a unique name for the connection factory. This name is stored in JNDI.</td>
</tr>
<tr>
<td>Client ID</td>
<td>Optional</td>
<td>Client identifier. For information about this attribute, see the BEA WebLogic Server documentation.</td>
</tr>
<tr>
<td>Default Priority</td>
<td>Optional</td>
<td>You can change the value for the priority. When you run a PowerCenter session to read JMS messages from a BEA WebLogic Server provider, the messages use this value for the JMSPriority header field unless otherwise specified.</td>
</tr>
<tr>
<td>Default Time To Live</td>
<td>Optional</td>
<td>For information about this attribute, see the BEA WebLogic Server documentation.</td>
</tr>
<tr>
<td>Default Time To Deliver</td>
<td>Optional</td>
<td>For information about this attribute, see the BEA WebLogic Server documentation.</td>
</tr>
<tr>
<td>Default Delivery Mode</td>
<td>Optional</td>
<td>You can change the value for the delivery mode. When you run a PowerCenter session to read JMS messages from a BEA WebLogic Server provider, the messages use this value for the JMSDeliveryMode header field unless otherwise specified.</td>
</tr>
<tr>
<td>Default Redelivery Delay</td>
<td>Optional</td>
<td>For information about this attribute, see the BEA WebLogic Server documentation.</td>
</tr>
</tbody>
</table>
4. Enter the value for the JNDI name in the Value You Configured column for the JMS Connection Factory application connection attribute in Table 3-2 on page 15.

5. Click Create.

The Target and Deploy tab appears.

6. Select a server.

7. Click Apply.

**Step 3. Configure a JMS Store**

Configure a JMS store when you want BEA WebLogic Server to use persistent messaging to read and write JMS messages. The type of store you configure determines the manner in which the JNDI database stores the JNDI settings you configure. You can configure the following store types:

- **JMSJDBC Store.** JNDI stores the settings using JDBC.
- **JMSFile Store.** JNDI stores the settings in a file system on your machine.

For more information about persistent messaging, see the BEA WebLogic Server documentation.

**To configure a JMS JDBC Store:**

1. From the Console pane, select Services > JMS > Stores.
2. Click Configure a New JMS JDBC Store.
3. Enter a name for the JMS JDBC Store.
4. Enter the name of the JDBC connection pool for this store.
5. Optionally, enter a prefix name.

   For more information about prefix names, see the BEA WebLogic Server documentation.

6. Click Create.

**To configure a JMS File Store:**

1. From the Console pane, select Services > JMS > Stores.
2. Click Configure a New JMS File Store.
3. Enter a name for the file in which JNDI will store the settings.
4. Select a Synchronous Write Policy.

   For more information about synchronous write policies, see the BEA WebLogic Server documentation.

5. Enter the directory where you want JNDI to create the file.

6. Click Create.
Step 4. Configure a JMS Server

Configure a JMS Server to send and receive JMS messages.

To configure a JMS Server:

1. From the Console pane, select Services > JMS > Servers.
2. Click Configure a New JMS Server.
3. Enter a name for the JMS Server.
4. Select a persistent store that you want to associate with the server if you want to use persistent messaging.
   For more information about persistent messaging, see the BEA WebLogic Server documentation.
5. Optionally, select a paging store.
   For more information about paging stores, see the BEA WebLogic Server documentation.
6. Optionally, select a temporary template.
   You may want to configure temporary templates when using the ReplyTo field in JMS target messages. For more information about temporary templates, see the BEA WebLogic Server documentation.
7. Enter an expiration scan interval.
   For more information about expiration scan intervals, see the BEA WebLogic Server documentation.
8. Click Create.
   The Target and Deploy tab appears.
9. Select a server from the list of servers in the Targets menu.
10. Click Apply.

Step 5. Configure a JMS Destination

After you configure a JMS Server, configure a JMS destination. You can configure a JMS queue destination or a JMS topic destination to store in JNDI. The Integration Service connects to JNDI to retrieve this information to read JMS messages from a BEA WebLogic Server source and write messages to a BEA WebLogic Server target.

If you enable recovery for a real-time JMS session, you also configure a recovery queue or topic destination.

To configure a JMS destination:

1. From the Console pane, select Services > JMS > Servers > <JMS Server name> > Destinations.
2. Click Configure a New JMS Queue or Configure a New JMS Topic.
   If you do not enter a name, BEA WebLogic Server assigns a name.
3. Enter a unique JNDI name for the queue or topic.
   This name is stored in JNDI.
4. Enter this value in the Value You Configured column for the Queue JMS Destination or Topic JMS Destination application connection attribute in Table 3-2 on page 15.
   If you are configuring a recovery queue or topic destination, enter this value in the Value You Configured column for the JMS Recovery Destination application connection attribute in Table 3-2 on page 15.
5. Optionally, enable replicate JNDI name in cluster.
   For more information about replicating JNDI names in clusters, see the BEA WebLogic Server documentation.
6. Select one of the following values for Enable Store:
   • Default. BEA WebLogic Server JMS allows persistent messaging if you have configured a JMS store.
False. BEA WebLogic Server does not allow persistent messaging.

True. BEA WebLogic Server allows persistent messaging if you have configured a JMS store. However, if you select true and you have not enabled persistent messaging, BEA WebLogic Server does not start.

For more information about the Enable Store option, see the BEA WebLogic Server documentation.

7. Optionally, select a template.

For more information about templates, see the BEA WebLogic Server documentation.

8. Optionally, add destination keys.

For more information about destination keys, see the BEA WebLogic Server documentation.

9. Click Create.

10. If you enable recovery for a real-time JMS session, repeat steps 1 to 9 to configure a unique JMS recovery destination.

11. After you configure the JNDI settings on BEA WebLogic Server, stop and restart the server.

Configuring Application Connections for BEA WebLogic Server 8.1

Table 3-1 shows the JNDI application connection attributes. Refer to this table when you configure a JNDI application connection in the Workflow Manager:

Table 3-1. JNDI Application Connection Attributes for WebLogic Server 8.1

<table>
<thead>
<tr>
<th>Application Connection Attribute</th>
<th>Default Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>JNDI Context Factory</td>
<td>weblogic.jndi.WLInitialContextFactory</td>
</tr>
<tr>
<td>JNDI Provider URL</td>
<td>t3://&lt;WebLogic_Server_hostname&gt;:&lt;port&gt;</td>
</tr>
<tr>
<td></td>
<td>where WebLogic Server host name is the host name or IP address of the BEA WebLogic Server and port is the port number for the BEA WebLogic Server.</td>
</tr>
</tbody>
</table>

Table 3-2 shows the JMS application connection attributes, where you configure them for BEA WebLogic Server 8.1, and blank spaces where you write the attribute values you configured. Refer to this table when you configure a JMS application connection in the Workflow Manager:

Table 3-2. JMS Application Connection Attributes for WebLogic Server 8.1

<table>
<thead>
<tr>
<th>JMS Destination Type</th>
<th>Application Connection Attribute</th>
<th>Required/Optional</th>
<th>BEA WebLogic Server Admin Console</th>
<th>Value You Configured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queue</td>
<td>JMS Connection Factory</td>
<td>Required</td>
<td>JNDI Name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Destination</td>
<td>Required</td>
<td>JNDI Name for Queue</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Recovery Destination</td>
<td>Optional</td>
<td>JNDI Name for Recovery Queue</td>
<td></td>
</tr>
<tr>
<td>Topic</td>
<td>JMS Connection Factory</td>
<td>Required</td>
<td>JNDI Name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Destination</td>
<td>Required</td>
<td>JNDI Name for Topic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Recovery Destination</td>
<td>Optional</td>
<td>JNDI Name for Recovery Topic</td>
<td></td>
</tr>
</tbody>
</table>
Configuring IBM WebSphere

You can configure JNDI settings to use WebSphere as a provider for JMS sources or targets. Before you configure WebSphere for JMS, install the following IBM products:

- WebSphere 6
- WebSphere MQ
- WebSphere MQ Publish/Subscribe, if you want to configure a topic connection factory in JNDI

To configure WebSphere for JMS, complete the following steps:

1. Set the CLASSPATH to WebSphere libraries.
2. Add the WebSphere Java /bin directory to the system path.
3. Set the path to the IBM jvm.dll file.
4. Configure the WebSphere MQ publish/subscribe broker if you want to configure a queue connection factory in JNDI.
5. Configure the JNDI settings.
6. Define the JMS connection factory and destination.

Step 1. Set the CLASSPATH to the WebSphere Libraries

Set the CLASSPATH to the following WebSphere libraries:

- websphere.jar
- ujc.jar
- iwsorb.jar
- pmjmsplugin.jar
- pmserversdk.jar

Setting the CLASSPATH on Windows

Set the CLASSPATH from the Windows Control Panel. For example, enter the following command:
Setting the CLASSPATH on UNIX

When you set the CLASSPATH, use the following guidelines in a UNIX shell:

<table>
<thead>
<tr>
<th>UNIX/Linux Shell</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C shell</td>
<td><code>setenv CLASSPATH &lt;path&gt;:$CLASSPATH</code></td>
</tr>
<tr>
<td>Bourne shell</td>
<td><code>CLASSPATH = &lt;path&gt;; export CLASSPATH</code></td>
</tr>
</tbody>
</table>

For example, using the C shell:

```
setenv PATH WebSphere/AppServer/java/bin: $path
```

For example, using the Bourne shell:

```
PATH = WebSphere/AppServer/java/bin; export PATH
```

Step 2. Add the Java /bin Directory to the System Path

Add the WebSphere Java /bin directory to the system path.

Adding the Java /bin Directory to the System Path on Windows

Add the Java /bin directory to the system path from the Control Panel. For example, enter the following command:

```
c:\WebSphere\AppServer\java\bin
```

Adding the Java /bin Directory to the System Path on UNIX

Add the Java /bin directory to the system path using the C shell or Bourne shell. For example, using the C shell:

```
setenv PATH WebSphere/AppServer/java/bin: $path
```

For example, using the Bourne shell:

```
PATH = WebSphere/AppServer/java/bin; export PATH
```

Step 3. Add the IBM jvm.dll File to the System Path

Add the directory containing the IBM jvm.dll file to the system path.

Adding the IBM JVM Library File to the System Path on Windows

Add the directory containing the IBM JVM library file to the system path from the Control Panel. For example, enter the following command:

```
c:\WebSphere\AppServer\java\jre\bin\classic
```

Adding the IBM JVM Library File to the System Path on UNIX

Add the directory containing the IBM JVM library file to the system path using the C shell or Bourne shell. For example, using the C shell:

```
setenv PATH WebSphere/AppServer/java/bin: $path
```

For example, using the Bourne shell:

```
PATH = WebSphere/AppServer/java/bin; export PATH
```
Step 4. Configure the WebSphere MQ Broker

Configure the WebSphere MQ Broker to use a topic connection factory in the JNDI settings. To use a queue connection factory, skip this step.

**To configure the WebSphere MQ Broker:**

1. Start the queue manager.
2. From the command line, enter the following command:
   ```
   strmqbrk -m <queue_manager>
   ```
   For example, if the queue manager is QM_queueemgr1, enter the following command:
   ```
   strmqbrk -m QM_queueemgr1
   ```
   When the command is successful, WebSphere MQ displays the following message:
   ```
   WebSphere MQ message broker started for queue manager QM_queueemgr1.
   ```
3. From the command line, go to the `<WebSphere MQ>/bin` directory.
4. Run the following command:
   ```
   runmqsc <queue_manager> < MQJMS_PSQ.mqsc
   ```
   For example, if the queue manager is QM_queueemgr1, enter the following command:
   ```
   runmqsc QM_queueemgr1 < MQJMS_PSQ.mqsc
   ```
   When the command is successful, WebSphere MQ displays the following message:
   ```
   8 MQSC commands read.
   No commands have a syntax error.
   All valid MQSC commands were processed.
   ```

Step 5. Configure JNDI Settings

Complete the following steps to configure the JNDI settings in the JMSAdmin.config file:

1. Modify the JMSAdmin.bat file.
2. Configure JNDI settings in the JMSAdmin.config file.
3. Configure JNDI settings in the Advanced Administrative Console.

**Modifying the JMSAdmin.bat File**

Use the following procedure to modify the JMSAdmin.bat file.

**To modify the JMSAdmin.bat file:**

1. Go to the `<WebSphere MQ Java>/bin` directory.
2. Add the following option to the JMSAdmin.bat file:
   ```
   -Djava.ext.dirs=<WebSphere Application Server>bin
   ```
   For example, if you modify the JMSAdmin.bat file on Windows, enter:
   ```
   -Djava.ext.dirs=WebSphere\AppServer\bin
   ```
3. Save and close the file.
Configuring JNDI Settings in the JMSAdmin.config File

Configure the JNDI settings for WebSphere to use WebSphere MQ using IIOP protocol.

To configure the JNDI settings in the JMSAdmin.config file:

1. Go to the <WebSphere MQ Java>/bin directory.
2. In the JMSAdmin.config file, find the INITIAL_CONTEXT_FACTORY settings.
3. Add the following context factory setting:
   `INITIAL_CONTEXT_FACTORY=com.ibm.websphere.naming.wsInitialContextFactory`
4. Enter this value in the Value You Configured column for the JNDI Context Factory application connection attribute in Table 4-1 on page 24.
5. If necessary, comment out any other context factory settings using the pound sign (#) as in the following example:
   `#INITIAL_CONTEXT_FACTORY= com.sun.jndi.ldap.LdapCtxFactory`
6. Find the PROVIDER_URL settings.
7. Enter this value in the Value You Configured column for the JNDI Provider URL application connection attribute in Table 4-1 on page 24.
8. If you use the file system service provider to store JNDI settings, remove the pound sign (#) before the following provider URL setting and provide a value for the JNDI directory.
   `PROVIDER_URL=iiop://<hostname>/`
   For example, you could specify:
   `PROVIDER_URL=iiop://localhost/`
9. If necessary, comment out any other provider URL settings using the pound sign (#) as in the following example:
   `#PROVIDER_URL=ldap://polaris/o=ibm,c=us`
10. If you want to provide a user DN and password for connecting to JNDI, remove the # from the following settings and enter a user DN and password:
    `PROVIDER_USERDN=cn=ABailey,o=infa,c=rc`
    `PROVIDER_PASSWORD=test`
11. Enter these values in the Value You Configured column for the JNDI Username and JNDI Password application connection attributes in Table 4-1 on page 24.
    For more information about specifying a user DN and password, see the WebSphere MQ documentation.
12. Save and close the file.

Configure JNDI Settings in the WebSphere Advanced Administrative Console

After you configure the JNDI settings in the JMSAdmin.config file, configure these settings in WebSphere using the WebSphere Advanced Administrative Console.

To configure JNDI settings using the WebSphere Advanced Administrative Console:

1. Open the WebSphere Advanced Administrative Console.
2. From the WebSphere Administrative Domain, click Resources > IBM WebSphere MQ.
3. From the General tab, enter the provider URL you configured in the JMSAdmin.config file.
4. Set the CLASSPATH to the following JAR files under Binding Classname:
   - websphere.jar
   - ujc.jar
   - iwsorb.jar
Step 6. Define the JMS Connection Factory and Destination

When you define the JMS connection factory for WebSphere, you must also define the WebSphere MQ JMS destination. You can define a queue connection factory or a topic connection factory. If you define a queue connection factory, define a JMS queue as the destination. If you define a topic connection factory, define a topic as the destination.

If you enable recovery for a real-time JMS session, you also configure a recovery queue or topic destination.

To define a queue connection factory and JMS queue:

1. From the command line, go to the WebSphere MQ Java /bin directory.
2. Enter jmsadmin.

   The following text displays:
   
   5648-C60 (c) Copyright IBM Corp. 2002. All Rights Reserved.  
   Starting WebSphere MQ classes for Java(tm) Message Service Administration

3. From the InitCtx command prompt, enter the following command to define a queue connection factory:

   def qcf(<qcf_name>) qmgr(queue_manager_name) 
   hostname (QM_machine_hostname) port (QM_machine_port)
The following table describes the parameters for the command to define a JMS queue connection:

<table>
<thead>
<tr>
<th>Option</th>
<th>Required/Optional</th>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>qcf</td>
<td>Required</td>
<td>qcf_name</td>
<td>Unique name for the queue connection factory.</td>
</tr>
<tr>
<td>qmgr</td>
<td>Optional</td>
<td>queue_manager_name</td>
<td>Queue manager. If you do not enter a queue manager, WebSphere MQ uses the local queue manager.</td>
</tr>
<tr>
<td>hostname</td>
<td>Optional</td>
<td>QM_machine_hostname</td>
<td>Host name or IP address of the queue manager if the queue manager resides on a different machine than the one on which you are defining the queue connection factory.</td>
</tr>
<tr>
<td>port</td>
<td>Optional</td>
<td>QM_machine_port</td>
<td>Port number for the host machine. Required if you enter a host name.</td>
</tr>
</tbody>
</table>

For more information about command parameters for defining a queue connection factory, see the WebSphere MQ documentation.

4. Enter the value of qcf_name in the Value You Configured column for the Queue JMS Connection Factory application connection attribute in Table 4-2 on page 24.

5. Enter the following command to define a JMS queue destination:

```
def q(<JMS_queue_name>) qmgr(queue_manager_name) qu(queue_manager_queue_name)
```

The following table describes the parameters to define a JMS queue:

<table>
<thead>
<tr>
<th>Option</th>
<th>Required/Optional</th>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>q</td>
<td>Required</td>
<td>JMS_queue_name</td>
<td>Enter a name for the JMS queue. This name must be unique.</td>
</tr>
<tr>
<td>qmgr</td>
<td>Required</td>
<td>queue_manager_name</td>
<td>Enter a queue manager.</td>
</tr>
<tr>
<td>qu</td>
<td>Required</td>
<td>queue_manager_queue_name</td>
<td>Enter the name of the queue associated with the queue manager.</td>
</tr>
</tbody>
</table>

For more information about command parameters for defining a queue destination, see the WebSphere MQ documentation.

6. Enter the value of JMS_queue_name in the Value You Configured column for the Queue JMS Destination application connection attribute in Table 4-2 on page 24.

7. If you enable recovery for a real-time JMS session, repeat step 5 to define a JMS recovery queue destination.

8. Enter the value of JMS_queue_name in the Value You Configured column for the Queue JMS Recovery Destination application connection attribute in Table 4-2 on page 24.

To define a topic connection factory and JMS topic name:

1. From the command line, go to the WebSphere MQ Java /bin directory.

2. Enter jmsadmin.

   The following text displays:

   5648-C60 (c) Copyright IBM Corp. 2002. All Rights Reserved. Starting WebSphere MQ classes for Java(tm) Message Service Administration

3. From the InitCtx command prompt, enter the following command to define a topic connection factory:

   ```
def tcf(<tcf_name>) qmgr(queue_manager_name) hostname (QM_machine_hostname) port (QM_machine_port)
```
The following table describes the parameters to define a JMS topic connection:

<table>
<thead>
<tr>
<th>Option</th>
<th>Required/Optional</th>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>tcf</td>
<td>Required</td>
<td>tcf_name</td>
<td>Unique name for the topic connection factory.</td>
</tr>
<tr>
<td>qmgr</td>
<td>Optional</td>
<td>queue_manager_name</td>
<td>Queue manager. If you do not enter a queue manager, WebSphere MQ uses the local queue manager.</td>
</tr>
<tr>
<td>hostname</td>
<td>Optional</td>
<td>QM_machine_hostname</td>
<td>Host name or IP address of the queue manager if the queue manager resides on a different machine than the one on which you are defining the topic connection factory.</td>
</tr>
<tr>
<td>port</td>
<td>Optional</td>
<td>QM_machine_port</td>
<td>Port number for the host machine. Required if you entered a host name.</td>
</tr>
</tbody>
</table>

4. Enter the value of tcf_name in the Value You Configured column for the Topic JMS Connection Factory application connection attribute in Table 4-2 on page 24.

For more information about command parameters to define a topic connection factory, see the WebSphere MQ documentation.

5. Enter the following command to define a JMS topic name:

   def t(<JMS_topic_name>) topic(pub/sub_topic_name)

The following table describes the parameters for the command to define a JMS topic:

<table>
<thead>
<tr>
<th>Option</th>
<th>Required/Optional</th>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>t</td>
<td>Required</td>
<td>JMS_topic_name</td>
<td>Enter a unique name for the JMS topic.</td>
</tr>
<tr>
<td>topic</td>
<td>Required</td>
<td>pub/sub_topic_name</td>
<td>Enter a unique topic name. For example, enter the following topic name: topic(stock/trade/infa)</td>
</tr>
</tbody>
</table>

For more information about topic naming conventions, see the IBM WebSphere MQ documentation.

6. Enter the value of JMS_topic_name in the Value You Configured column for the Topic JMS Destination application connection attribute in Table 4-2 on page 24.

7. If you enable recovery for a real-time JMS session, repeat step 5 to define a JMS recovery topic destination.

8. Enter the value of JMS_topic_name in the Value You Configured column for the Topic JMS Recovery Destination application connection attribute in Table 4-2 on page 24.

9. Type end to exit the JMS administration tool.

**Configuring Application Connections for WebSphere**

You configure the JNDI settings for WebSphere in the WebSphere Advanced Administration Console. You configure the JMS settings in IBM WebSphere MQ.
**JNDI Application Connection for WebSphere**

Table 4-1 shows the JNDI application connection attributes, where you configure them for IBM WebSphere, and blank spaces where you write the attribute values you configured. Refer to this table when you configure a JNDI application connection in the Workflow Manager:

**Table 4-1. JNDI Application Connection Attributes for IBM WebSphere**

<table>
<thead>
<tr>
<th>Application Connection Attribute</th>
<th>JMSAdmin.config File</th>
<th>Value You Configured</th>
</tr>
</thead>
<tbody>
<tr>
<td>JNDI Context Factory</td>
<td>INITIAL_CONTEXT_FACTORY</td>
<td>The default is: com.ibm.websphere.naming.wsInitialContextFactory</td>
</tr>
<tr>
<td>JNDI Provider URL</td>
<td>PROVIDER_URL</td>
<td></td>
</tr>
<tr>
<td>JNDI UserName</td>
<td>PROVIDER_USERDN</td>
<td></td>
</tr>
<tr>
<td>JNDI Password</td>
<td>PROVIDER_PASSWORD</td>
<td></td>
</tr>
</tbody>
</table>

**JMS Application Connection for WebSphere**

Table 4-2 shows the JMS application connection attributes, where you configure them for WebSphere MQ, and blank spaces where you write the parameter values you configured. Refer to this table when you configure a JMS application connection in the Workflow Manager:

**Table 4-2. JMS Application Connection Attributes for IBM WebSphere**

<table>
<thead>
<tr>
<th>JMS Destination Type</th>
<th>Application Connection Attribute</th>
<th>Required/Optional</th>
<th>InitCtx Command Argument</th>
<th>Value You Configured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queue</td>
<td>JMS Connection Factory</td>
<td>Required</td>
<td>qcf_name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Destination</td>
<td>Required</td>
<td>JMS_queue_name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Recovery Destination</td>
<td>Optional</td>
<td>JMS_queue_name for recovery</td>
<td></td>
</tr>
<tr>
<td>Topic</td>
<td>JMS Connection Factory</td>
<td>Required</td>
<td>tcf_name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Destination</td>
<td>Required</td>
<td>JMS_topic_name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Recovery Destination</td>
<td>Optional</td>
<td>JMS_topic_name for recovery</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER 5

JBoss

This chapter includes the following topics:

♦ Configuring JBoss, 25
♦ Configuring Application Connections for JBoss, 28

Configuring JBoss

You can configure JNDI settings to use JBoss as a provider for JMS sources or targets.

To configure JBoss for JMS, complete the following steps:

1. Set the CLASSPATH to JBoss libraries.
2. Configure the JNDI provider URL.
3. Configure the connection factory (optional).
4. Configure destinations.

Step 1. Set the CLASSPATH to the JBoss Libraries

Set the CLASSPATH to the following JBoss libraries:

♦ pmjmsplugin.jar
♦ pmserversdk.jar
♦ fscontext.jar
♦ concurrent.jar
♦ jms.jar
♦ j2ee.jar
♦ jboss-jmx.jar
♦ jboss-j2ee.jar
♦ jbossmq.jar
♦ jboss.jar
♦ jnp-client.jar
♦ jnpserver.jar

Setting the CLASSPATH on Windows

Set the CLASSPATH from the Control Panel. For example, enter the following command:
Setting the CLASSPATH on UNIX

When you set the CLASSPATH, use the following guidelines in a UNIX shell:

<table>
<thead>
<tr>
<th>UNIX/Linux Shell</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C shell</td>
<td><code>setenv CLASSPATH &lt;path&gt;:$CLASSPATH</code></td>
</tr>
<tr>
<td>Bourne shell</td>
<td><code>CLASSPATH = &lt;path&gt;; export CLASSPATH</code></td>
</tr>
</tbody>
</table>

For example, using the C shell:

```
setenv CLASSPATH jboss-3.2.5/server/all/lib/jboss.jar: $CLASSPATH
```

For example, using the Bourne shell:

```
CLASSPATH = jboss-3.2.5/server/all/lib/jboss.jar; export CLASSPATH
```

Step 2. Configure the JNDI Provider URL

Add the Java Naming Provider URL to the JNDI properties file.

To add the Java Naming Provider URL to the JNDI properties file:

1. Open `jndi.properties`, located in the following directory:
   
   `jboss-3.2.5/server/default/conf`

2. Optionally, modify the following line to change the name of the JNDI context factory:
   
   `java.naming.factory.initial=org.jnp.interfaces.NamingContextFactory`

3. Enter this value in the Value You Configured column for the JNDI Context Factory application connection attribute in Table 5-1 on page 28.

4. Modify the following line to specify a server name and port number:
   
   `java.naming.provider.url=jnp://<server>:<port number>`

   The following example specifies the server s158308 on port number 1099:
   
   `java.naming.provider.url=jnp://s158308:1099`

5. Enter this value in the Value You Configured column for the JNDI Provider URL application connection attribute in Table 5-1 on page 28.

Step 3. Configure the Connection Factory (Optional)

You can use the default queue and topic connection factory names or you can change them.

To change a queue connection factory name:

1. Open `jms-ds.xml`, located in the following directory:
   
   `jboss-3.2.5/server/default/deploy/jms`

2. Modify the following line to change the name of the XAConnectionFactory queue connection factory:
   
   `<attribute name="QueueFactoryRef">java:/XAConnectionFactory</attribute>`

3. Enter the value of the QueueFactoryRef attribute in the Value You Configured column for the Queue JMS Connection Factory application connection attribute in Table 5-2 on page 28.

To change a topic connection factory name:

1. Open `jms-ds.xml`, located in the following directory:
   
   `jboss-3.2.5/server/default/deploy/jms`
2. Modify the following line to change the name of the XAConnectionFactory topic connection factory:
   
   `<attribute name="TopicFactoryRef">java:/XAConnectionFactory</attribute>`

3. Enter the value of the TopicFactoryRef attribute in the Value You Configured column for the Topic JMS Connection Factory application connection attribute in Table 5-2 on page 28.

### Step 4. Configure Destinations

Configure message destinations as MBean services.

If you enable recovery for a real-time JMS session, you also configure a recovery queue or topic destination.

#### To configure a queue destination:

1. Open `jbossmq-destinations.xml`, located in the following directory:
   
   `jboss-3.2.5/server/default/deploy/jms`

2. Add the following to create a queue destination:
   
   ```xml
   <mbean code="org.jboss.mq.server.jmx.Topic"
   name="jboss.mq.destination:service=Topic,name=queue_name">
   <depends optional=
   attributename="DestinationManager">jboss.mq:service=DestinationManager</depends>
   </mbean>
   ```

   where `<queue_name>` is the name of the queue destination you are creating.

3. Enter this value in the Value You Configured column for the Queue JMS Destination application connection attribute in Table 5-2 on page 28.

4. If you enable recovery for a real-time JMS session, repeat step 2 to create a recovery queue destination.

5. Enter this value in the Value You Configured column for the Queue JMS Recovery Destination application connection attribute in Table 5-2 on page 28.

#### To configure a topic destination:

1. Open `jbossmq-destinations.xml`, located in the following directory:
   
   `jboss-3.2.5/server/default/deploy/jms`

2. Add the following to create a topic destination:
   
   ```xml
   <mbean code="org.jboss.mq.server.jmx.Topic"
   name="jboss.mq.destination:service=Topic,name=topic_name">
   <depends optional=
   attributename="DestinationManager">jboss.mq:service=DestinationManager</depends>
   </mbean>
   ```

   where `<topic_name>` is the name of the topic destination you are creating.

3. Enter this value in the Value You Configured column for the Topic JMS Destination application connection attribute in Table 5-2 on page 28.

4. If you enable recovery for a real-time JMS session, repeat step 2 to create a recovery topic destination.

5. Enter this value in the Value You Configured column for the Topic JMS Recovery Destination application connection attribute in Table 5-2 on page 28.
Configuring Application Connections for JBoss

Table 5-1 shows the JNDI application connection attributes, where you configure them for JBoss, and blank spaces where you write the attribute values you configured. Refer to this table when you configure a JNDI application connection in the Workflow Manager:

### Table 5-1. JNDI Application Connection Attributes for JBoss

<table>
<thead>
<tr>
<th>Application Connection Attribute</th>
<th>Where Configured</th>
<th>Value You Configured</th>
</tr>
</thead>
<tbody>
<tr>
<td>JNDI Context Factory</td>
<td>jndi.properties file</td>
<td></td>
</tr>
<tr>
<td>JNDI Provider URL</td>
<td>jndi.properties file</td>
<td></td>
</tr>
</tbody>
</table>

Table 5-2 shows the JMS application connection attributes, where you configure them for JBoss, and blank spaces where you write the attribute values you configured. Refer to this table when you configure a JMS application connection in the Workflow Manager:

### Table 5-2. JMS Application Connection Attributes for JBoss

<table>
<thead>
<tr>
<th>JMS Destination Type</th>
<th>Application Connection Attribute</th>
<th>Required/Optional</th>
<th>Where Configured</th>
<th>Value You Configured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queue</td>
<td>JMS Connection Factory</td>
<td>Required</td>
<td>jms-ds.xml file</td>
<td>queue/ XAConnectionFactory.</td>
</tr>
<tr>
<td></td>
<td>JMS Destination</td>
<td>Required</td>
<td>jbossmq-destinations.xml file</td>
<td>queue/</td>
</tr>
<tr>
<td></td>
<td>JMS Recovery Destination</td>
<td>Optional</td>
<td>jbossmq-destinations.xml file</td>
<td>queue/</td>
</tr>
<tr>
<td>Topic</td>
<td>JMS Connection Factory</td>
<td>Required</td>
<td>jms-ds.xml file</td>
<td>topic/ XAConnectionFactory.</td>
</tr>
<tr>
<td></td>
<td>JMS Destination</td>
<td>Required</td>
<td>jbossmq-destinations.xml file</td>
<td>topic/</td>
</tr>
<tr>
<td></td>
<td>JMS Recovery Destination</td>
<td>Optional</td>
<td>jbossmq-destinations.xml file</td>
<td>topic/</td>
</tr>
</tbody>
</table>

**Note:** When configuring a JMS application connection for JBoss, prefix the Queue JMS Destination attribute with queue/ and the Topic JMS Destination attribute with topic/. For example, for a queue JMS destination, enter the following command:

```
queue/<queue_name>
```

For a topic JMS destination, enter the following command:

```
topic/<topic_name>
```
This chapter includes the following topics:

- Configuring SonicMQ, 29
- Configuring Application Connections for SonicMQ, 34

## Configuring SonicMQ

You can configure JNDI settings to use SonicMQ as a provider for JMS sources or targets.

To configure JNDI settings for SonicMQ, complete the following steps:

1. Define a connection factory type.
2. Configure a connection factory and bind topics and queues.
3. Set the CLASSPATH to the SonicMQ JAR files.

### Step 1. Define a Connection Factory Type

The connection factory can be a queue connection factory or topic connection factory. Define the queues and topics in the Management Console.

If you enable recovery for a real-time JMS session, you also configure a recovery queue or topic destination.

**To define a queue:**

1. Go to the `<SonicMQ>/bin` directory.
2. Run `setenv*` script to set environment variables.
3. Run `startcontainer.sh` to start the broker and default queues and topics.
4. Start the Management Console.
   - On Windows, click `Start > Programs > SonicSoftware > SonicMQ > Management Console`.
   - On UNIX, enter:
     ```bash
     startmc.sh
     ```
5. In the Management Console, specify the following attributes to connect to the container:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection Name</td>
<td><code>&lt;connection_name&gt;</code></td>
</tr>
<tr>
<td>Domain Name</td>
<td><code>&lt;domain_name&gt;</code></td>
</tr>
</tbody>
</table>
6. Enter the value for the connection URL parameter in the Value You Configured column for the JNDI Provider URL application connection attribute in Table 6-1 on page 34.

7. Select the Configure tab.

8. Select Configured Objects > Brokers.

Broker 1 is the default broker.

The Sonic Management Console appears.

9. Right-click Queues and choose New Queue.

10. Enter the name of the queue.

11. Enter this value in the Value You Configured column for the Queue JMS Destination application connection attribute in Table 6-2 on page 34.

   If you are configuring a recovery queue destination, enter this value in the Value You Configured column for the Queue JMS Recovery Destination application connection attribute in Table 6-2 on page 34.

12. Click OK to accept the default settings.

13. If you enable recovery for a real-time JMS session, repeat steps 9 to 12 to create a recovery queue destination.

To define a topic:

1. Select the Configure tab in the console.

2. Select Configured Objects > Brokers > Routing.

3. Right-click Definitions.

The New Routing Definition dialog box appears.

5. On the General tab, enter the Node Name.
6. Click OK.
7. Select the Connection tab and click Add.
   The New Connection URL dialog box appears.
8. Enter the URL and click OK.
9. Right-click Global Subscriptions and select New Subscription Rule.
   The new Global Subscription Rule dialog box appears.

10. Enter the topic name in Topic Parameters.
11. Enter this value in the Value You Configured column for the Topic JMS Destination application connection attribute in Table 6-2 on page 34.

   If you are configuring a recovery topic destination, enter this value in the Value You Configured column for the Topic JMS Recovery Destination application connection attribute in Table 6-2 on page 34.
12. In Nodes, click Add to add the routing node you created in Step 5.

13. Click OK to create the topic.

14. If you enable recovery for a real-time JMS session, repeat steps 9 to 13 to create a recovery topic destination.

Step 2. Configure and Bind a Connection Factory

Configure a connection factory using CLI shell commands. Then, bind it to the queue or topic you created in “Step 1. Define a Connection Factory Type” on page 29.

To configure and bind a queue connection factory:

1. From the command line, go to the Sonic java directory:
   <install_dir>\samples\Management\jndiAPI\java directory

2. Start the JNDI CLI shell.

   On Windows, enter the following command from a DOS prompt.
   ..\..\..\Mgmt JndiCLI Domain1 tcp://localhost:2506 Administrator Administrator

   On UNIX, enter the following command:
   sh ../../../Mgmt.sh JndiCLI Domain1 tcp://localhost:2506 Administrator Administrator

   The CLI shell command prompt (>) displays.

3. From the CLI shell command prompt, enter the following command to define a queue connection factory:
   
   bind qcf <name> <attribute=value>

   The following table describes the parameters for the command to define a JMS queue connection:

<table>
<thead>
<tr>
<th>Option</th>
<th>Required/Optional</th>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bind qcf</td>
<td>Required</td>
<td>&lt;name&gt; &lt;attribute=value&gt;</td>
<td>Enter a unique name for the queue connection factory.</td>
</tr>
</tbody>
</table>

   For example, the following command defines a JMS queue connection factory:
   
   bind qcf cf_1 ConnectionURLs=tcp://lexus:2506

   For more information about command parameters for defining a queue connection factory, see the SonicMQ documentation.

4. Enter this value in the Value You Configured column for the Queue JMS Connection Factory application connection attribute in Table 6-2 on page 34.

5. Enter the following command to bind a JMS queue to a queue name:
   
   bind queue <name> <queue name>

   The following table describes the parameters for the command to bind a JMS queue to a queue name:

<table>
<thead>
<tr>
<th>Option</th>
<th>Required/Optional</th>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bind queue</td>
<td>Required</td>
<td>&lt;name&gt; &lt;queue name&gt;</td>
<td>If you enter a value for host name, enter a port number.</td>
</tr>
</tbody>
</table>

   For example, the following command binds the JMS_3 queue to an identically named queue name:
   
   bind queue JMS_3 JMS_3

To configure and bind a topic connection factory:

1. From the command line, go to the Sonic java directory:
   <install_dir>\samples\Management\jndiAPI\java directory
2. Start the JNDI CLI shell.
   
   On Windows, enter the following command from a DOS prompt.
   ```
   ..\..\..\Mgmt JndiCLI Domain1 tcp://localhost:2506 Administrator Administrator
   ```
   
   On UNIX, enter the following command:
   ```
   sh ../../../Mgmt.sh JndiCLI Domain1 tcp://localhost:2506 Administrator Administrator
   ```
   
   The CLI shell command prompt (>) displays.

3. From the CLI shell command prompt, enter the following command to define a topic connection factory:
   ```
   bind tcf <name> <attribute=value>
   ```
   The following table describes the parameters for the command to define a JMS topic connection:

<table>
<thead>
<tr>
<th>Option</th>
<th>Required/Optional</th>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bind tcf</td>
<td>Required</td>
<td>&lt;name&gt; &lt;attribute=value&gt;</td>
<td>Enter a unique name for the topic connection factory.</td>
</tr>
</tbody>
</table>

   For example, the following command defines a JMS topic connection factory:
   ```
   bind tcf cf_topic ConnectionURLs=tcp://lexus:2506
   ```
   
   For more information about command parameters for defining a topic connection factory, see the SonicMQ documentation.

4. Enter this value in the Value You Configured column for the Topic JMS Connection Factory application connection attribute in Table 6-2 on page 34.

5. Enter the following command to bind a JMS topic to a topic name:
   ```
   bind topic <name> <topic_name>
   ```
   The following table describes the parameters for the command to bind a JMS topic to a topic name:

<table>
<thead>
<tr>
<th>Option</th>
<th>Required/Optional</th>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>bind topic</td>
<td>Required</td>
<td>&lt;name&gt; &lt;topic_name&gt;</td>
<td>If you enter a value for host name, enter a port number.</td>
</tr>
</tbody>
</table>

   For example, the following command binds the topic_5 topic to an identically named topic name:
   ```
   bind topic topic_5 topic_5
   ```

**Step 3. Set the CLASSPATH**

Set the CLASSPATH to the following SonicMQ libraries:

- sonic_Channel.jar
- sonic_ASPI.jar
- sonic_mgmt_client.jar
- sonic_Crypto.jar
- sonic_Client.jar
- sonic_XA.jar
- sonic_SF.jar
- sonic_XMessage.jar
- pmjmsplugin.jar
- pmserversdk.jar
Setting the CLASSPATH on Windows

Set the CLASSPATH from the Control Panel. For example, enter the following command:

c:\<Sonic_install_dir>\lib\sonic_Client.jar

Setting the CLASSPATH on UNIX

When you set the CLASSPATH, use the following guidelines in a UNIX shell:

<table>
<thead>
<tr>
<th>UNIX/Linux Shell</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>C shell</td>
<td>setenv CLASSPATH &lt;path&gt;:$CLASSPATH</td>
</tr>
<tr>
<td>Bourne shell</td>
<td>CLASSPATH = &lt;path&gt;; export CLASSPATH</td>
</tr>
</tbody>
</table>

For example, using the C shell:

```
setenv CLASSPATH /export/home/build71/SonicMQ/lib/sonic_Client.jar: $CLASSPATH
```

For example, using the Bourne shell:

```
CLASSPATH = /export/home/build71/SonicMQ/lib/sonic_Client.jar; export $CLASSPATH
```

Configuring Application Connections for SonicMQ

Table 6-1 shows the JNDI application connection attributes. Refer to this table when you configure a JNDI application connection in the Workflow Manager:

<table>
<thead>
<tr>
<th>Application Connection Attribute</th>
<th>Default Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>JNDI Context Factory</td>
<td>com.sonicsw.jndi.mfcontext.MFContextFactory</td>
</tr>
<tr>
<td>JNDI Provider URL</td>
<td>tcp://&lt;SonicMQ_Server_hostname&gt;:&lt;port&gt;</td>
</tr>
</tbody>
</table>

where SonicMQ_Server host name is the host name or IP address of the SonicMQ Server and port is the port number for the SonicMQ Server.

Table 6-2 shows the JMS application connection attributes, where you configure them for SonicMQ, and blank spaces where you write the attribute values you configured. Refer to this table when you configure a JMS application connection in the Workflow Manager:

<table>
<thead>
<tr>
<th>JMS Destination Type</th>
<th>Application Connection Attribute</th>
<th>Required/Optional</th>
<th>Where Configured</th>
<th>Value You Configured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queue</td>
<td>JMS Connection Factory</td>
<td>Required</td>
<td>CLI Shell: qcf Command</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Destination</td>
<td>Required</td>
<td>Management Console: Queue Name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Recovery Destination</td>
<td>Optional</td>
<td>Management Console: Queue Name for recovery</td>
<td></td>
</tr>
<tr>
<td>Topic</td>
<td>JMS Connection Factory</td>
<td>Required</td>
<td>CLI Shell: tcf Command</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Destination</td>
<td>Required</td>
<td>Management Console: Topic Name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Recovery Destination</td>
<td>Optional</td>
<td>Management Console: Topic Name for recovery</td>
<td></td>
</tr>
</tbody>
</table>
This chapter includes the following topics:

- Configuring TIBCO Enterprise Message Service, 35
- Configuring Application Connections for TIBCO Enterprise Message Service, 36

**Configuring TIBCO Enterprise Message Service**

You can configure JNDI settings to use TIBCO Enterprise Message Service as a provider for JMS sources or targets.

You can define a queue connection factory or a topic connection factory. If you define a queue connection factory, define a queue as the destination. If you define a topic connection factory, define a topic as the destination.

If you enable recovery for a real-time JMS session, you also define a recovery queue or topic destination.

**To configure a queue connection factory and destination:**

1. Start the TIBCO Enterprise Message Service Administration tool.
2. From the command line, enter the following command to connect to the TIBCO Enterprise Message Service server:
   ```
   connect tcp://<hostname>:<port>
   ```
   where `<hostname>` is the host name or IP address of the TIBCO Enterprise Message Service server and `<port>` is the port number for the TIBCO Enterprise Message Service server.
3. Enter the following command to define a queue connection factory:
   ```
   create factory <connection_factory_name> queue
   ```
4. Enter the value of the `connection_factory_name` argument in the Value You Configured column for the Queue JMS Connection Factory application connection attribute in Table 7-2 on page 37.
5. Enter the following command to define the queue destination:
   ```
   create queue <queue_name>
   ```
6. Enter the value of the `queue_name` argument in the Value You Configured column for the Queue JMS Destination application connection attribute in Table 7-2 on page 37.
7. If you enable recovery for a real-time JMS session, enter the following command to define the recovery queue destination:
   ```
   create queue <recovery_queue_name>
   ```
8. Enter the value of the `recovery_queue_name` argument in the Value You Configured column for the Queue JMS Recovery Destination application connection attribute in Table 7-2 on page 37.
To configure a topic connection factory and destination:

1. Start the TIBCO Enterprise Message Service Administration tool.

2. From the command line, enter the following command to connect to the TIBCO Enterprise Message Service server:

   ```
   connect tcp://<hostname>:<port>
   ```

   where `<hostname>` is the host name or IP address of the TIBCO Enterprise Message Service server and `<port>` is the port number for the TIBCO Enterprise Message Service server.

3. Enter the following command to define a topic connection factory:

   ```
   create factory <connection_factory_name> topic
   ```

4. Enter the value of the `connection_factory_name` argument in the Value You Configured column for the Topic JMS Connection Factory application connection attribute in Table 7-2 on page 37.

5. Enter the following command to define the topic destination:

   ```
   create topic <topic_name>
   ```

6. Enter the value of the `topic_name` argument in the Value You Configured column for the Topic JMS Destination application connection attribute in Table 7-2 on page 37.

7. If you enable recovery for a real-time JMS session, enter the following command to define the recovery topic destination:

   ```
   create topic <recovery_topic_name>
   ```

8. Enter the value of the `recovery_topic_name` argument in the Value You Configured column for the Topic JMS Recovery Destination application connection attribute in Table 7-2 on page 37.

For more information about command parameters to define a queue connection factory and destination, see the TIBCO Enterprise Message Service documentation.

### Configuring Application Connections for TIBCO Enterprise Message Service

Table 7-1 shows the JNDI application connection attributes. Refer to this table when you configure a JNDI application connection in the Workflow Manager:

<table>
<thead>
<tr>
<th>Application Connection Attribute</th>
<th>Default Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>JNDI Context Factory</td>
<td>com.tibco.tibjms.naming.TibjmsInitialContextFactory</td>
</tr>
<tr>
<td>JNDI Provider URL</td>
<td>tcp://&lt;hostname&gt;:&lt;port&gt;</td>
</tr>
<tr>
<td></td>
<td>where <code>&lt;hostname&gt;</code> is the host name or IP address of the TIBCO Enterprise Message Service server and <code>&lt;port&gt;</code> is the port number for the TIBCO Enterprise Message Service server.</td>
</tr>
</tbody>
</table>
Table 7-2 shows the JMS application connection attributes, where you configure them for TIBCO, and blank spaces where you write the attribute values you configured. Refer to this table when you configure a JMS application connection in the Workflow Manager:

**Table 7-2. JMS Application Connection Attributes for TIBCO Enterprise Message Service**

<table>
<thead>
<tr>
<th>JMS Destination Type</th>
<th>Application Connection Attribute</th>
<th>Required/Optional</th>
<th>EMS Administration Tool Command Argument</th>
<th>Value You Configured</th>
</tr>
</thead>
<tbody>
<tr>
<td>Queue</td>
<td>JMS Connection Factory</td>
<td>Required</td>
<td>connection_factory_name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Destination</td>
<td>Required</td>
<td>queue_name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Recovery Destination</td>
<td>Optional</td>
<td>recovery_queue_name</td>
<td></td>
</tr>
<tr>
<td>Topic</td>
<td>JMS Connection Factory</td>
<td>Required</td>
<td>connection_factory_name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Destination</td>
<td>Required</td>
<td>topic_name</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JMS Recovery Destination</td>
<td>Optional</td>
<td>recovery_topic_name</td>
<td></td>
</tr>
</tbody>
</table>

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