



**Using the JNBridge JMS Adapter for BizTalk Server  
with Oracle AQ  
Version 4.0**

[www.jnbridge.com](http://www.jnbridge.com)

# Using the JMS Adapter with Oracle AQ

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## Quick Config for Oracle AQ

### When OAQ is configured as a Foreign Server in WebLogic

Because the JNBridge adapter is a stand-alone JMS client, the foreign server configuration in WebLogic for Oracle AQ must use the Oracle DB connection URL rather than a Data Source. However, JMS clients deployed to WebLogic require the Oracle AQ foreign server configuration to use a Data Source. The solution is to create two foreign servers, one for stand-alone JMS clients and the other for clients deployed to WebLogic, e.g. a MDB.

#### Adapter Transport Handler Properties

- Initial Context Factory: `weblogic.jndi.WLInitialContextFactory`
- JMS Scheme: `t3`
- Queue Connection Factory:  
The local JNDI name of the OAQ queue connection factory.
- Topic Connection Factory:  
The local JNDI name of the OAQ topic connection factory.
- Class Path:  
`wlthint3client.jar, orai18n.jar, ojdbc6.jar, aqapi.jar`  
The JAR file listed above, `ojdbc6.jar`, must be used if a Java 6 JVM is used. If Java 5 is being used, then the JAR file `ojdbc5.jar` must be used.
- JVM Path (examples):  
`C:\Program Files\Java\jre7\bin\client\jvm.dll`  
If a 64-bit JRE is being used, then the path would be similar to:  
`C:\Program Files\Java\jre7\bin\server\jvm.dll`

#### Adapter Send or Receive Port Properties

- Port Number: `7001`
- JMS Object Name  
The local JNDI name for the OAQ destination.

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## When OAQ is stand-alone using the JNBridge JNDI scaffold

Please see the section *Using the JNBridge JNDI scaffold with stand-alone Oracle AQ* for more information.

### Adapter Transport Handler Properties

- Initial Context Factory: `com.jnbridge.adapters.oaq.InitialContextFactory`

- JMS Scheme: `orcl`

- Queue Connection Factory:

This connection factory must be used: `QueueConnectionFactory`

- Topic Connection Factory:

This connection factory must be used: `TopicConnectionFactory`

- Class Path:

`jnbOAQ.jar, aqapi.jar, orai18n.jar, ojdbc6.jar, jms.jar, jndi.jar, jta.jar`

The JAR file listed above, `oidbc6.jar`, must be used in the Java 6 JVM is used. If Java 5 is being used, then the JAR file, `oidbc5.jar`, must be used.

- JVM Arguments:

`-Dcom.jnbridge.adapters.oaq.dbname=[OracleSID]`

- JVM Path (examples):

`C:\Program Files\Java\jre7\bin\client\jvm.dll`

If a 64-bit JRE is being used, then the path would be similar to:

`C:\Program Files\Java\jre7\bin\server\jvm.dll`

- Security Properties

The User Name and Password credentials to access the Oracle DB must be supplied.

### Adapter Send or Receive Port Properties

- Port Number: `1521`

- JMS Object Name

The local JNDI name for the OAQ destination.

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## Using the JMS Adapter with Oracle AQ

This document assumes some passing familiarity with enterprise Java such as JNDI contexts, factories and general connection requirements and parameters. This document also assumes that the BizTalk developer has access to particular information peculiar to the target JMS implementation. Finally, this document assumes that the reader is knowledgeable and experienced with BizTalk Server.

This document assumes that Oracle AQ is either stand-alone, or deployed to WebLogic configured as a foreign server. If OracleAQ is deployed to WebLogic, or any other JEE application server using a JCA resource adapter, then refer to the configuration guide specific for that application server.

This document only discusses those property values in the adapter transport handlers and location handlers that pertain to communicating with Oracle AQ. Other properties that are not discussed here can be found in the companion *Using the JNBridge JMS Adapter for BizTalk Server* document.

### Resources

- The user guide, *Using the JNBridge JMS Adapter for BizTalk Server*.
- Chances are, if the target Oracle AQ implementation is mature, the values for the configuration of BizTalk transport handlers and send/receive ports can be supplied by the Oracle AQ administrator.

### BizTalk Machine Prerequisites

The following prerequisites are needed for the adapter.

- A Java Run-time Environment (JRE) must be installed on the target machine. The JNBridge JMS Adapter supports the Standard Edition JRE 7 or above.
- The JNBridge JMS Adapter for BizTalk uses the stand-alone JMS environment supplied by Oracle AQ. This environment consists of several JAR files including, depending on configuration, a JNBridge JAR file.

## Deploy JMS Header Schema to BizTalk Application

In order to properly handle JMS header properties within BizTalk, you must deploy the assembly, `JNBridgeBTS2006JMSProperties.dll`, to your BizTalk application. This assembly contains the XSD namespaces and schemas used by the JNBridge JMS Adapter to promote JMS header properties within messages stored in the BizTalk Message Box.

**!** *Deploying this assembly is mandatory.*

■ To deploy the schema assembly

- 1 Open up the BizTalk Administrator and open your BizTalk application in the left-side tree view.
- 2 Right click on the application's root node and choose **Add ► Resources**. This opens the **Add Resources** dialog.
- 3 In the dialog, click on the **Add** button and navigate to the schema DLL in the adapter install directory, e.g. `C:\Program Files\JNBridge\JMSAdapters\BTS2006\bin\JNBridgeBTS2006JMSProperties.dll`.
- 4 Click on **OK** to close the **Add Resources** dialog.
- 5 Open the **Schemas** folder in your application. You should see the three schemas: `JMSSendProperty.SendPropertySchema`, `JMSRecvProperty.RecvPropertySchema` and `JMSConfProperty.ConfPropertySchema`.
- 6 Restart the host instance and application.

## Configuring the Adapter Send and Receive Transport Handlers

The transport handler property grids for the Send and Receive sides contain properties global to all send or receive ports configured to use the JNBridge JMS Adapter and that reside in the same BTS host instance. In other words, all JMS Adapter send or receive ports in the BTS host instance will inherit these transport properties. You must configure send handler transport properties in order to produce messages to queues and topics. Likewise, you must configure receive handler transport properties in order to consume messages from queues and topics. In most cases, the values of the properties will be identical between the send and receive handlers; however, depending on the JMS server implementation, they may be different.

### JMS Properties Category

The JMS Properties category are properties used to properly connect to a JMS server.

■ JMS Acknowledge Mode

The Acknowledge Mode is a drop-down list containing the JMS specification that determines how a JMS client and server institute a reliable messaging protocol. The choices are `AUTO_ACKNOWLEDGE`, `CLIENT_ACKNOWLEDGE` and `DUPS_OK_ACKNOWLEDGE`. Regardless of the choice, the JNBridge JMS Adapter will correctly implement the protocol.

For Oracle AQ, `AUTO_ACKNOWLEDGE` is the default configuration.

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## ■ Initial Context Factory

This is a text-editable field containing the name of the JNDI initial context factory. The initial context factory is a JNDI class used to locate and instance factories and JMS destinations.

If Oracle AQ is configured in WebLogic as a foreign server, use this factory:

`weblogic.jndi.WLInitialContextFactory`

If Oracle AQ is stand-alone, then the JNBridge supplied JNDI scaffolding in *jnbOAQ.jar* must be used along with this initial context factory:

`com.jnbridge.adapters.oaq.InitialContextFactory`

Please see the section *Using the JNBridge JNDI scaffold with stand-alone Oracle AQ* for more information.

If Oracle AQ is used as a messaging provider with another J2EE app server, then the JNDI initial context class may be different.

**!** ***Factory names are case sensitive—be sure the name (including the complete namespace, if necessary) is typed correctly.***

## ■ JMS Scheme

This is a text-editable field. The JMS Scheme or *Protocol* is particular to each vendor's implementation. The protocol is part of the URI used to connect to the JMS service.

If Oracle AQ is configured as a foreign server in WebLogic, then use:

`t3` or `t3s`

If Oracle AQ is used stand-alone along with the JNBridge JNDI scaffold, use:

`orcl`

## ■ JMS Version

This property tells the adapter which JMS implementation to expect when it loads the vendor's client stack—the JAR files in the Class Path property. The drop-down list contains two choices, 'JMS 1.1' and 'JMS 2.0'.

## ■ JMS Security Mode

The JMS Security Mode is a drop-down list that specifies the type of security required by the JMS server implementation. The choices are none, simple and strong. If the choice is simple, then the server expects a user name and password.

**!** ***If the JMS server implements simple security, it is not necessary to configure this property. Enter a user name and password—the JNBridge JMS Adapter will automatically switch to the simple security mode.***



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## ■ Queue Connection Factory

This is a text-editable field. If Oracle AQ is configured as a foreign server within WebLogic, then use the local JNDI name of the OAQ queue connection factory. If Oracle AQ is stand-alone using the supplied JNBridge JNDI scaffold, then use:

`QueueConnectionFactory`

## ■ Topic Connection Factory

This is a text-editable field. If Oracle AQ is configured as a foreign server within WebLogic, then use the local JNDI name of the OAQ topic connection factory. If Oracle AQ is stand-alone using the supplied JNBridge JNDI scaffold, then use:

`TopicConnectionFactory`

## JNBridge Properties Category

The JNBridge Properties Category correctly configure the .NET-to-Java interoperability core components.

### ■ Class Path

The Java class path is a set of semicolon-separated paths to the JAR or class files required for a JMS client installation. The class path is used by the JNBridge Java and .NET interoperability components to locate the JMS and JNDI client Java classes so they can be instantiated in the Java Virtual Machine.

To edit the class path, click in the field to enable the browse button. Click on the button to launch the Edit Class Path dialog. Note that only checked elements will be added to the class path when the dialog is dismissed.

The JAR files required by the JMS adapter if Oracle AQ is configured as a foreign server in WebLogic:

```
[WebLogic Directory]\server\lib\wlthint3client.jar  
[Oracle DB Directory]\dbhome_1\RDBMS\jlib\aqapi.jar  
[Oracle DB Directory]\dbhome_1\jlib\orai18n.jar
```

If using a Java 6 JRE, use:

```
[Oracle DB Directory]\dbhome_1\jdbc\lib\ojdbc6.jar
```

If using a Java 5 JRE, use:

```
[Oracle DB Directory]\dbhome_1\jdbc\lib\ojdbc5.jar
```

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The JAR files required by the JMS adapter if using stand-alone Oracle AQ. You must use the supplied JNDI scaffold. Please see the section *Using the JNBridge JNDI scaffold with stand-alone Oracle AQ* for more information.

```
[Adapter Directory]\support\Oracle_AQ_ICF.zip\jnbOAQ.jar
[Oracle DB Directory]\dbhome_1\RDBMS\jlib\aqapi.jar
[Oracle DB Directory]\dbhome_1\jlib\orai18n.jar
[Oracle DB Directory]\dbhome_1\RDBMS\jlib\jmscommon.jar
[Oracle DB Directory]\dbhome_1\jlib\jndi.jar
[Oracle DB Directory]\dbhome_1\jlib\jta.jar
```

If using a Java 6 JRE, use:

```
[Oracle DB Directory]\dbhome_1\jdbc\lib\ojdbc6.jar
```

If using a Java 5 JRE, use:

```
[Oracle DB Directory]\dbhome_1\jdbc\lib\ojdbc5.jar
```

## ■ JVM Path

The JVM Path property is the absolute path to the Java Virtual Machine implementation, `jvm.dll`. To edit the JVM Path property, click in the field to enable the browse button. Click on the button to launch the standard File Open dialog. Navigate to `jvm.dll` and click OK. In the example shown, the JVM used is:

```
C:\Program Files\Java\jre7\bin\client\jvm.dll
```

## ■ JVM Arguments:

If Oracle AQ is being used stand-alone along with the JNBridge JNDI scaffold, this argument supplies the SID identifier of the Oracle DB.

```
-Dcom.jnbridge.adapters.oaq.dbname=[OracleSID]
```

Please see the section *Using the JNBridge JNDI scaffold with stand-alone Oracle AQ* for more information.

## Security Properties Category

This category provides security credentials necessary to connect to a JMS server, if the JMS implementation supports security mode simple.

If using stand-alone Oracle AQ, then the supplied JNBridge JNDI scaffold requires the password and user name for the OAQ user/role. That user must also be the *schema owner*. Please see the section *Using the JNBridge JNDI scaffold with stand-alone Oracle AQ* for more information.

## ■ Password

Click in this field to drop-down the password edit field. Type in the password.

## ■ User Name

This is a text editable field. Enter the user name necessary to connect to the JMS server.

## Configuring Send Ports and Receive Locations

### Configuring Send Ports

#### Connection Properties Category

These properties determine where the JMS server resides and the port number where it is listening for connections.

- Host Name

This is a text-editable field. Enter the name or IP address of the machine hosting the JMS implementation.

- Port Number

This is a text-editable field. Enter the port number on which the JMS server is accepting connections.

For Oracle AQ configured as a foreign server in WebLogic, the default t3 port is:

**7001**

For stand-alone Oracle AQ using the supplied JNDI scaffold, use the port where the DB is listening for connections. The default is:

**1521**

Please see the section *Using the JNBridge JNDI scaffold with stand-alone Oracle AQ* for more information.

- Proprietary Connection String

This is a text-editable field. This property is only used if the JMS implementation uses complex URLs containing query expressions, or some proprietary connection string, that can not be constructed from the Host Name and Port Number properties. If this property contains a value, then the Host Name and Port Number properties will be ignored.

#### JMS Operation Properties Category

These properties determine what operation the send port will enable.

- JMS Object Name

This is a text-editable field. Enter the name of the JMS destination.

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- **JMS Object Type**

This is a drop-down list containing two values: Queue or Topic.

- **Message Type**

This is a drop-down list containing the values: Text, Text UTF, Text ISO-8859-15 or Bytes. If Text is chosen, then the JNBridge JMS Adapter will send a JMS Text Message. Because a JMS Text Message is by definition UTF-16 BE, the types Text UTF and Text ISO-8859-15 ensure that the string which is the payload of the JMS message is correctly encoded from the binary representation in the BizTalk Message Box. If the type Text is chosen, then the binary representation is considered UTF-8. If Bytes is chosen, then the JNBridge JMS Adapter will send a JMS Bytes Message.

## Configuring Receive Ports and Locations

### Connection Properties Category

These properties determine where the JMS server resides and the port number where it is listening for connections.

- **Host Name**

This a text-editable field. Enter the name or IP address of the machine hosting the JMS server.

- **Port Number**

This is a text-editable field. Enter the port number on which the JMS server is accepting connections.

For Oracle AQ configured as a foreign server in WebLogic, the default t3 port is:

**7001**

For stand-alone Oracle AQ using the supplied JNDI scaffold, use the port where the DB is listening for connections. The default is:

**1521**

Please see the section *Using the JNBridge JNDI scaffold with stand-alone Oracle AQ* for more information.

- **Proprietary Connection String**

This is a text-editable field. This property is only used if the JMS implementation uses complex URLs containing query expressions, or some proprietary connection string. that can not be constructed from the Host Name and Port Number properties. If this property contains a value, then the Host Name and Port Number properties will be ignored.

## JMS Operation Properties Category

These properties determine what operation type of operation the send port will enable.

- **JMS Object Name**

This is a text-editable field. Enter the name of the JMS destination.

- **JMS Object Type**

This is a drop-down list containing two values: Queue, Topic or SharedTopic.

- **Message Type**

This is a drop-down list containing the values: Text, Text UTF-8, Text UTF-16, Text ISO-8859-15, Bytes or Map. If Text is chosen, then the JNBridge JMS Adapter expects to receive a JMS Text Message. If Bytes is chosen, then the JNBridge JMS Adapter expects to receive a JMS Bytes Message. If Map is chosen, then the JNBridge JMS Adapter expects to receive a JMS Map Message. Because a JMS Text Message by definition contains UTF-16 BE text, the types Text UTF-8, Text UTF-16 and Text ISO-8859-15 ensure that the text in the body of the message is encoded correctly to binary for submittal to the BizTalk Message Box. The type Text without a qualifier means UTF-8.

- **Client ID**

This is a unique string that identifies the receive port connection to Oracle AQ. It is only used if durable subscriptions are enabled.

- **Durable Subscription Name**

Durable subscriptions are particular to topics only. A durable subscription for a topic allows consumers to register a name with the JMS server such that whenever a receive port is active, all messages in the topic will be received. In this way, a receive port does not have to be continually connected to receive messages from a topic. A receive port that does not use durable subscriptions must be active and connected in order to subscribe to a topic—any messages published by the topic while a nondurable receive port is not active will not be available to that receive port when it becomes active. This is a text-editable field. Enter the durable subscription name.

- **Message Selector Filter**

Message selectors are used by receive ports to filter or select messages from topics and queues based on JMS and custom message header properties.

This is a text-editable field. Enter in a selector expression. The expression is derived from a subset of the SQL92 standard.

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## Trouble Shooting

### Using the JNBridge JNDI scaffold with stand-alone Oracle AQ

If Oracle AQ is used as a stand-alone implementation—it's not deployed to WebLogic or any other JEE application server—the required JNDI (Java Naming and Directory Interface) implementation is missing. The JMS 1.1 specification defines the use of JNDI for JMS clients, like the adapter.

The adapter supplies a JNDI scaffold that can be found in the zip file, `Oracle AQ_ICF.zip`. It can be found in the support directory, , e.g. `C:\Program Files\JNBridge\JMSAdapters\BTS2006\support\Oracle_AQ_ICF.zip`.

The zip file contains the source for an initial context factory and naming context. To use the supplied JNDI scaffold unzip the archive to a convenient location. The JAR file containing the JNDI scaffold is `jnbOAQ.jar`.

Follow these instructions to use the work-around initial context factory.

1. Copy the JAR file, `jnbOAQ.jar`, to the location where the other JAR files that constitute the Oracle AQ JMS client are located.
2. Modify the Class Path property in the send and receive transport handlers by adding the new JAR file to the classpath.
3. In the Initial Context Factory property in the send and receive transport handlers enter this class:

```
com.jnbridge.adapters.oaq.InitialContextFactory
```

4. In the JVM Arguments property in the send and receive transport handlers, enter this value to specify the Oracle DB SID indentfier:

```
-Dcom.jnbridge.adapters.oaq.dbname=[OracleSID]
```