



**Using the JNBridge JMS Adapter for BizTalk Server
with GlassFish and OpenMQ
Version 4.0**

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Using the JMS Adapter with GlassFish

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Contents

Quick Config for GlassFish/OpenMQ	4
Adapter Transport Handler Properties.....	4
Adapter Send or Receive Port Properties	4
Using the JMS Adapter with GlassFish	5
Resources.....	5
BizTalk Machine Prerequisites.....	5
Deploy JMS Header Schema to BizTalk Application.....	6
Configuring the Adapter Send and Receive Transport Handlers.....	6
JMS Properties Category	6
JNBridge Properties Category.....	8
Security Properties Category	
Configuring Send Ports and Receive Locations.....	9
Configuring Send Ports.....	9
Connection Properties Category	9
JMS Operation Properties Category	9
Configuring Receive Ports and Locations.....	10
Connection Properties Category	10
JMS Operation Properties Category	10

Using the JMS Adapter with GlassFish

Quick Config for GlassFish/OpenMQ

Adapter Transport Handler Properties

- Initial Context Factory:

For GlassFish 3.x and 4.x, use this initial context factory:

```
com.sun.enterprise.naming.impl.SerialInitContextFactory
```

For GlassFish 2.1, use this initial context factory:

```
com.sun.appserv.naming.SIASCtxFactory
```

- JMS Scheme: `iiop`

- Queue Connection Factory:

No default connection factories are pre-configured.

- Topic Connection Factory:

No default connection factories are pre-configured.

- Class Path:

For GlassFish 3.x and 4.x, Use this JAR file, `gf-client.jar`. Because this JAR file has an embedded classpath, it must be in situ with the entire GlassFish/OpenMQ directory structure. For GlassFish 2.1, use these JAR files (there is no embedded class path, so use only these):

```
.../glassfish/imq/lib/imq.jar  
.../glassfish/imq/lib/imqutil.jar  
.../glassfish/imq/lib/jms.jar  
.../glassfish/lib/appserv-admin.jar  
.../glassfish/lib/appserv-rt.jar  
.../glassfish/lib/j2ee.jar  
.../glassfish/lib/javaee.jar
```

- JVM Path (examples):

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

- JVM Arguments

If the GlassFish server is not running on the machine where BizTalk and the adapter are installed, then a JEE system property must be used to specify the machine where the GlassFish server is running. Use the JVM Arguments property with this entry:

```
-Dorg.omg.CORBA.ORBInitialHost=<servername>
```

Adapter Send or Receive Port Properties

- Port Number: `3700`

- JMS Object Name

No JMS destinations are preconfigured

Using the JMS Adapter with GlassFish

This document uses the default JMS broker pre-configured in GlassFish, OpenMQ. 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 only discusses those property values in the adapter transport handlers and location handlers that pertain to communicating with GlassFish/OpenMQ. 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 GlassFish implementation is mature, the values for the configuration of BizTalk transport handlers and send/receive ports can be supplied by the GlassFish administrator, gleaned from existing JMS client code or property files, e.g. *jndi.properties*.
- If the GlassFish/OpenMQ implementation targeted is not configured, then the default example JMS broker can be used for proof-of-concept evaluations.

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 SonicMQ. This environment consists of one or more JAR files. Please see the section, *Class Path*, below.

Using the JMS Adapter with GlassFish

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

Using the JMS Adapter with GlassFish

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 GlassFish, `AUTO_ACKNOWLEDGE` is the default configuration.

■ 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. For GlassFish 3.x and 4.x, use this initial context factory:

```
com.sun.enterprise.naming.impl.SerialInitContextFactory
```

For GlassFish 2.1, use this initial context factory:

```
com.sun.appserv.naming.SIASCtxFactory
```

■ 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.

For GlassFish, the default scheme is:

```
iiop
```

■ 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.

■ Queue Connection Factory

This is a text-editable field. No default connection factories are pre-configured.

■ Topic Connection Factory

This is a text-editable field. No default connection factories are pre-configured.

Using the JMS Adapter with GlassFish

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.

For GlassFish version 3.x and 4.x, the jar file required by the JMS adapter: :

`[GlassFish_Directory]\glassfish\lib\gf-client.jar`

This JAR file has an embedded classpath in its manifest. As such, it is recommended that the machine where BizTalk and the adapter are installed also have GlassFish installed even if the GlassFish server is running on another machine. The Class Path property must point to the `gf-client.jar` file in situ.

For GlassFish 2.1, use these JAR files (there is no embedded class path, so use only these):

```
.../glassfish/imq/lib/imq.jar  
.../glassfish/imq/lib/imqutil.jar  
.../glassfish/imq/lib/jms.jar  
.../glassfish/lib/appserv-admin.jar  
.../glassfish/lib/appserv-rt.jar  
.../glassfish/lib/j2ee.jar  
.../glassfish/lib/javaee.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`

Using the JMS Adapter with GlassFish

■ JVM Arguments

If the GlassFish server is not running on the machine where BizTalk and the adapter are installed, then a JEE system property must be used to specify the machine where the GlassFish server is running. Use the JVM Arguments property with this entry:

```
-Dorg.omg.CORBA.ORBInitialHost=<servername>
```

Security Properties Category

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

■ 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 server.

- Port Number

This is a text-editable field. Enter the port number on which the JMS server is accepting connections. For GlassFish configured for the iiop transport, this port is usually, by default, **3700**.

- 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. No default JMS destinations are pre-configured.

- 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 GlassFish configured for the iiop transport, this port is usually, by default, [3700](#).

- **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. No default JMS destinations are pre-configured.

- **JMS Object Type**

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

Using the JMS Adapter with GlassFish

■ 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 GlassFish/OpenMQ. 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.