Using the JNBridge JMS Adapter for .NET with Tibco EMS

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Quick Config for Tibco EMS

Binding Properties Tab

- Initial Context Factory: `com.tibco.tibjms.naming.TibjmsInitialContextFactory`
- JMS Scheme: `tibjmsnaming`
- Queue Factory: `QueueConnectionFactory`
- Topic Factory: `TopicConnectionFactory`
- Class Path

  `jms.jar, tibjms.jar, tibjmsadmin.jar, tibcrypt.jar`
- JVM Path (example)

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

URI Properties Tab

- Port Number: `7222`

Using the JMS Adapter with Tibco EMS

This document uses the example JMS service that comes pre-configured in Tibco EMS. 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 .NET developer has access to particular information peculiar to the target JMS implementation. Finally, this document assumes that the reader is knowledgeable and experienced with .NET.

This document assumes that Tibco EMS is stand-alone rather than deployed to a JEE application server as the messaging provider using a JCA connector. If this is the case, then refer to the Tibco EMS documentation and the JEE app server documentation.

This document only discusses those property values that pertain to communicating with Tibco EMS. Other properties that are not discussed here can be found in the companion *Using the JNBridge JMS Adapter for .NET* document.

Resources

- The user guide, *JNBridge JMS Adapter for .NET Users' Guide.*
- Chances are, if the target Tibco EMS implementation is mature, the values for the configuration of BizTalk transport handlers and send/receive ports can be supplied by the Tibco EMS administrator or gleaned from existing JMS client code.
- If the Tibco EMS implementation targeted is not configured, then the default example JMS service installed with Tibco EMS can be used for proof-of-concept evaluations. This document uses the example JMS service in Tibco EMS.
- It is strongly suggested that the developer read the section *Tips and Tricks* in the *JNBridge JMS Adapter for .NET Users' Guide*.

Machine Prerequisites

The following prerequisites are needed for the adapter.

- A public 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 .NET uses the stand-alone client JMS environment supplied by Tibco EMS. This environment consists of four JAR files: *jms.jar*, *tibjms.jar*, *tibjmsadmin.jar* and *tibcrypt.jar*.

Configuring the Adapter Connection Properties

The **Add Adapter Service Reference** development tool in Visual Studio is used to generate the `app.config` file and the WCF client file. The WCF client contains the methods chosen to send and receive JMS messages. The `app.config` file contains the binding element whose attribute values are the parameters used to initialize and connect to the JMS server. Each of the binding attribute values can be entered in the **Binding Properties** tab of the **Configure Adapter** dialog box. While it is possible to enter these values and then connect to the JMS server from the **Add Adapter Service Reference** dialog box, it is more efficient to work off-line and generate the `app.config` and the WCF client using only the generic operations. Please see the section *Tips and Tricks* in the *JNBridge JMS Adapter for .NET Users' Guide* for more information about working off-line and using the generic operations.

What follows are the property values required to connect to the default stand-alone JMS implementation in Tibco EMS. If Tibco EMS is used as a messaging provider in a JEE server, then configuration properties may be different.

Binding Properties Tab

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

- Choose JMS Vendor

  This is a drop-down control that comes pre-charged with default vendor connection properties. Click and select *Tibco EMS* and the default configuration values will automatically appear.

- Custom 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 and Port properties in the URI tab will be ignored.

- 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 a default Tibco EMS connection factory, **AUTO_ACKNOWLEDGE** is the default configuration.

- Initial Context Factory

  This is a text-editable field containing the name of the initial context factory. The initial context factory is a class used to create a JNDI initial context used to look-up connection

factories and destinations. The default initial context factory for Tibco EMS is:

```
com.tibco.tibjms.naming.TibjmsInitialContextFactory
```

! ***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 RMI implementation. The protocol is part of the URI used to connect to the JMS service.

  For Tibco EMS, the scheme is:

  ```
  tibjmsnaming
  ```

- 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.***

- Queue Connection Factory

  This is a text-editable field. The default queue connection factory in Tibco EMS is:

  ```
  QueueConnectionFactory
  ```

! ***This value includes the JNDI directory path to the connection factory. The complete JNDI path must be provided.***

- Topic Connection Factory

  This is a text-editable field. The default queue connection factory in Tibco EMS is:

  ```
  TopicConnectionFactory
  ```

! ***This value includes the JNDI directory path to the connection factory. The complete JNDI path must be provided.***

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 to .NET interoperability components to locate the JMS and JNDI client Java classes so they can be instanced 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 Tibco EMS 4.4.1 the JAR files can be found here:

  [TibcoEMS_Directory]\ems\clients\java\jms.jar

  [TibcoEMS_Directory]\ems\clients\java\tibjms.jar

  [TibcoEMS_Directory]\ems\clients\java\tibjmsadmin.jar

  [TibcoEMS_Directory]\ems\clients\java\tibcrypt.jar

  These four JAR files can be copied to a convenient location on the development or deployment machine.

- 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 JRE used is:

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

  Tibco EMS supports Java 5.

URI Properties Tab

This category provides the location of the host where Tibco EMS is running and the port that Tibco EMS listens to for connections.

- Host

  The host name or IP address of the machine running Tibco EMS.

- Port

  This is a text editable field. Enter the port where Tibco EMS is listening for client connections. By default this is port `7222`.

Security Tab

This tab need only be used if security is implemented in the Tibco EMS server and is of type *simple*. Note that the password will appear in clear text in the `app.config` file. Please see the section *Deploying Solutions* in the *Users' Guide*.

- Client credential type

  This is a drop-down control. Choose the credential type *Username*.

- User name

  Enter the user name credential.

- Password

  Enter the password credential

JNDI Names

Figure1 shows the Tibco EMS 4.4.1 Admin command line interface. The console is displaying the JNDI directory structure for the default Tibco EMS installation server. The commands `show jndinames`, `show queues` and `show topics` will display the JNDI names for connection factories, queues and topics, respectively. It is important to use complete JNDI paths, either forward slash ('/') or dot ('.') delineated, for connection factories and JMS destinations.

Tibco EMS is usually hosted by a J2EE application server like WebSphere or WebLogic. If this is the case, a different JNDI provider will replace the JNDI implementation in Tibco EMS. This means that the initial context factory will be different and may require additional JAR files in the class path.

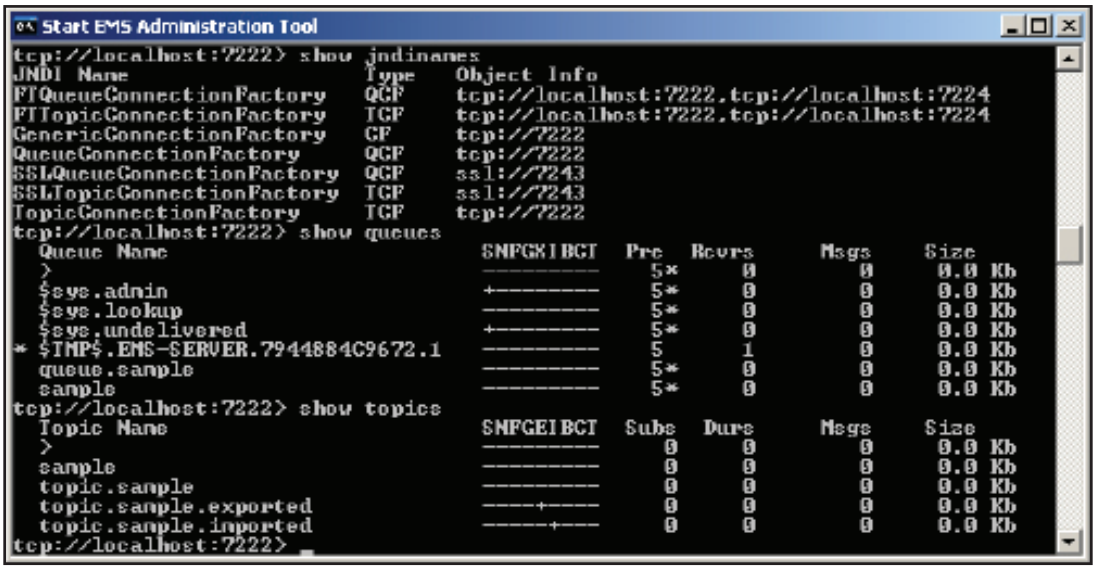

Figure 1. The JNDI tree